

The amino acid sequences below of List 1, are the ninety-two identified protease sequences of the present invention.

LIST 1

SEQ ID NO. 1

NMAILCAMVVGVLIAGLAVGLTRSCDSSGDGGLGTVPAAPSHLPSSTASPSGPPAQDQDQICPSSSEDESGQWKNFTAE
LRQPGPDLHVKPLLEEDTYTGTVSISINLSTPTRHLWLHLGESRITWLPDTRHLWLHLQETRITWLPKMRPSGDQV
QIRRCFEYKKQYEVVVEAEEESGDGLYLLTMEFAGWLNSSLLGFTYTENGQVKSIAATDHEPTDARKFFPCFDKPNK
KATYITISVTHPKEYEALSHMPVAKEESVDDKWNQTTFKKSVPMSEMYLVCFAVHQFHTVKTISDIGKPVSLII

SEQ ID NO. 2

MSPPLLLLLPLLLLLPLLNVEPAGATLDPVWIPLRQVHPGRRTLNLRLRGWGKPAELPKLGPSPGDKPASVPLSKFLDA
QYFGEIGLGTTPPQNFTVAFDTGSSNLWVPSRRCHFFSVPCWFHHRFNPANASSSFKPSGTFKFAIQYGTGRVDGILSED
KLITIGGIKASVIFGEALWESSLVFTVSRPDGILRLGFPILSVEGVRPPLDVLVEQGLLDKPVFSFYFNRCWGGGXG
CAMYCRIVRLEDPLDTGTPVIVGPTEEIGPCMQPLGESLLAGEYIIRCSEIPKLPAVSLLLIGGVWFNLTAQDYVIOF
AQGDVRLCLSGFRALDIASPPVPVWILGDVFLGAYVTVFDRGDMKSGARVGLARARPGADLGRRETQAQYRGCRPGD
HAHRVALALLSKNPFIPLNEPA

SEQ ID NO. 3

MDTAAKAIILEQSGKNQGYRDADIRSFWPEGGVCLPGSPDVLESGVCMKAVCKRVAVEGVVDVIFSRDAGRYVCDYTY
YLSLHHGKGCAALIHVPPLSRGLPASLLGRALRVIIQEMLEEVGK

SEQ ID NO. 4

IYVSSWAVQVSQGNREVERLARKFGFVNLGPIFPDGQYFHLRHRGVVQQLTPHWGHRHLHLKKNPKVQWFQQQTLQR
RVKRSVVVPTDPWFQWYMNSEAQPDLSILQAWSQGLSGQGI VVSVDGIEKDHPDLWANYDPLASYDFNDYDPD
PQPRYTPSKENRHGTRCAGEVAAMANNFGFCGVGAFNARIGGVRLDGTITDVEAQSLSLQPQHIHIYSASWGPED
DGRTVDPGPILTREAFRRGVTKGRGGLGTLFIWASGNGLHYDNCNCDGYTNSIHTLSVGSTTQQGRVPWYSEACAS
TLTTTTYSSGVATDPQIVTTDLHHGCTDQHTGTSASAPLAAGMIALALEANPFLTWRDMQHLVVRASKPAHLQAEDWR
TNGVGRQG

SEQ ID NO. 5

LVGYAIQYGCIAHCASEYVGGVVMCSGPSMEPTIQNSDVFQAQNLNRHFDISIQRGDIVIAKSPSDPTSNIICKRVGTGL
EGDKILTTPSPDFFKSYSYVPVGHVWLEGDQLQNSTDSSYYGPIPYELIRGRIFFIRPLSDFGFLCASLNHRFSDD

SEQ ID NO. 6

MLITVYCVRRDLSEVTFSLQVSPDFELRNFKVLCEAESRVPVEEIQI IHMERLLIEDHCSLGSYGLKDGDIVVLLQK
DNVGPRAPGRAPNQPRVDFSGIAVPGTSSSRPQHPGQQQQRTPAQAQSRQGLASGEKVAGLQGLGSPALIRSMLLSNP
HDLSELLKERNPPLAEALLSGSLETFSQVLMEQQREKALREQERLRLYTADPLDREAQAKIEEIRQONIEENMNIAI
EEAPESFGQVTMLYINCKVNGHPLKAFVDSGAQMTIMSQAACERCNIMRLVDRRWAGVAKGVGTQRIIGRVHLAQIQ
IEGDFLQCSFSILEDDQPMMLLGLDMLRRHQCSIDLKKNVLVIGTTGTQTYFLPEGELPLCSRMVSGQDESSDKEIT
HSVMDSGRKEH

SEQ ID NO. 7

HGRVLLPLNLQLGAKVSFVCDGFRLLKGRSASHCVLAGMKALWNSSVPVCERIICGLPPTIANGDFTSISREYFHYG
SVVTYHCNLGSRGKKVFELVGEPSIYCTSKDDQVGIWSGPAPQCIIPNKCTPPNVENGILVSDNRSLSLNEVVEFR
CQPGFGMAKGPESHVKCQALNKWEPFLPSCSRVCQPPPDVLHAERTQRDKDNFSPGQEVFYSCPEGYDLRGSTYLHCTP
QGDWSPAAPRCEVKSDDFLGQLPNGHVLFPLNLQLGAKVDFVCDGFGQLKSSASVCVLAGMESLWNSSVPVCERK
SCETPPVPVNGMVHVIITDIHVGSRIYNSCTTGSSASHCVLAGTKALWNSSVPVCEQIFCPNPPAILNHRHTGTTPPGDI
PYGKEVSYTCDPHPDRGMTFNLIGESTIRRTSEPHGNGVWSSPAPRCELPGAVIFSTHLITLFYCLGTLTGTLIIIFI
LIIIFLY

SEQ ID NO. 8

GGGSPGWGCAGIPDSAPGAGVLQAGAVGPARGGQGAEEVGESAGGGEERRVRHPQAPALRLLNRKPQGGSGEIKTPE
 NDLQRGRLSRGPRTPAPPAPGMGDRSGQQERSVPHSPGAPVGTSAAAVNGLLHNGFHPPPVPQPHVCSRGPVGGSDAA
 PQRLLPLPELQPPQLLPQHDSPAKKCRLRRRMDSGRKNRPPFPWFMDIGGTLVKLVYFEPKDIATAEEEQEEVENLK
 SIRKYLTSNTAYGKTGIRDVHLELKNLTMCGRKGNLHFIQMGSEKNFSSLHTTLCATGGGAFKFEE
 DFRMIADLQLHKLDELDCLIQGLLYVDSVGFNGKPECYFENPTNPCLCQKPYCLDNYPMLLVNMGSGVSILAVY
 SKDNYKRVGTGSLGGGTFLGLCCLLTGCETFEEALEMAAKGDSTNVDKLVKDIYGGDYERFGLQGSAAVASSFGNMMS
 KEKRDSISKEDLARATLVTTITNIGSIARMCALNENIDRVVFGNFLRINMVMKLLAYAMDFWSKGQLKALFLEHE
 GYFGAVGALLELFKMTD

SEQ ID NO. 9

MRPVALLLLPSLLALLAHGLSLEAPTGVKGQAPGIEETDGETAAPTPEQPERGVHFVTTAPTCLKLLNHHPLLEEF
 HEGLEKGDDELRPALSFQDPDPAPFTPSALPRLANQDSRPVFTSPTPAMGAVPTQPQSKEGPWSPESSESPMLRITAP
 LPPGSPMAVPTLGPGEIASTTPPSRAWPTPQEGPGDMGRPWVAEVVSQAGAGIGIQGTITSSTASGDDEETTTTTTII
 TTTITTIVQTPGPCSWNFSGPEGSLDSPTDLSSPTDVGLDCCFFYISVYPGYGVEIKVQNISLREGETVTVEGLGGPDP
 LPLANQSFLLRGQVIRSPTHQAALRFQSLPPPAGPGTTFHFHYQAYLLSCHFPRRPAYGDVTVTSLHPGGSARFHCAT
 GYQLKGARHLTCLNATQPFWDSKEPVCIAACGGVIRNATTGRIVSPGFPGNYSNNLTCHWLLEAPEGQRLHLHFKEV
 SLAEDDDRLIIRNGDNVEAPPVYDSYEVEYLP IEGLLSSGKHFFVELSTDSSGAAAGMALRYEAFQQGHCEYEPFVKY
 GNFSSTPTYPVGTTFVEFSCDPGYTLEQGSIIIECVDPHDPQWNETEPACRAVCSGEITDSAGVVLPTPEPEPYGRGQ
 DSIWGVHVEEDKRIMLDIRVLRIGPGDVLTFYDGGDLTARVLGQYSGPRSHFKLFTSMADVTIQFQSDPGTSVLGYQ
 QGFVIHFFEVPRNDTCPELPEIPNGWKSQPELVHGTVVTYQCYPGYQVVGSSVLMCQWDLTWEEDLPSCQRTVSC
 HDPGDVEHSRRLISSPKFPVGATVQYICDQGFVLMGSSILTCHDRQAGSPKWSDRAPKCLLEQLKPCCHLSAPENGA
 RSPEKQLHPAGATIHFSAPGYVLKGQASIKCVPGHPSHWSDPPPICRAASLDGFYNSRSLDVAKAPAASSTLDAAH
 IAAAIPLPLVAMVLLVGGVYFYFSRLQGKSSQLPRPRPRPNRITIESAFDNPTYETGSLSFAGDERI

SEQ ID NO. 10

EKALALTGNQGIEAAMDWLMEHEDDPDVEPLETPLVTPYGEPTSSEQGGLEGSGSAAGEGKPALSEEERQEQTARM
 LELVAQKQREEREEREERERERQRRRQGGELSAARQLQEDEMRRAAEERRREKAEELAARQVREREIERDKAER
 AKKYGGSVGSQPPPVAPPEPGVPSSPSQEPKREYDQCRIQVRLPDGTSLSLTQTFRAREQLAAVRLYVELHRGEELG
 GGQDPVQQLSGFFPRRAFSEADMERPLQELGLVPSAVLIVAKKCPS

SEQ ID NO. 11

SLHLSERADWQYSQRELDAVEVFFSRRTARDNRLGCMFVRCAPSSRYTLLFSHGNAVDLGQMCSFYIGLGSRINCNI
 SYDYSYGVSSGKPKSEKNLYADIDAAWQALRTRYGVSPENIILYGQSIGTVPTVDLASRYECAAVILHSPMLSGLRV
 AFPDTRKTYCFDAFPSIDKISKVTSPLVVIHGTEDEVIDFSHGLAMYERCPRAVEPLWVEGAGHNDIELYAQYLERL
 KQFIHELPHNS

SEQ ID NO. 12

MTMEKGMSSGEGPLPSRSSQVSAGKITAKELETKQSYKEKRGGFVLVHAGAGYHSESKAKEYKHVCKRACQKAIEKLQ
 AGALATDAVTAALVELEDSPTNAGMGSNLNLGIECDASIMDGKSLNFGAVGALSGIKNPVSVANRLLCEGQKKG
 LSAGRIPPCFLVGEAGYRWAVDHGIPSCPPNIMTTRFSLAAFKNRKRKLELAERVDTDFMQLKKRRQSSEKENDSGT
 LDTVGAVVVDHEGNVAAVSSGGLALKHPGRVGAALYGCGCWAENTGAHNPYSTAVSTSGCGEHLVRTILARECSH
 ALQAEDAHQALLETMQNKFISSPFLASEDGVLLGGVIVLRSCRCSCAEPDSSQNKQTLLEFLWSHTTESMCMVGYMSAQ
 DGKAKTHISRLPPGAVAGQSVIAIEGGVCRLESPVN

SEQ ID NO. 13

KIKDCYGLGSGQNHFIKDSQWEQQAEIFNASYKKYLDREWEEEPSTATFYFLLPSCLFAMPPEVKGPSGMACVLGI
 HWTRSHNFFLYSLNRTLKDKADPEGVWPCAAPIAVSQSLSCSSSYLVLACEDGVLTLDLAKGFPLGVAALPQGCFCQ
 SIHFLKYFSVHKQNMYPEGQVKSQMKCVLCTDASLHLVEASGTQGPTISVLVERPVKHLDKTICAVAPVPALPGM
 VLIFSKNGSVCLMDVAKREIICAFAPPGAFFLEVPWKPVFAVSPDHPCFLLRGDYSHETASTDDAGIQYSVFYFNFE
 ACPLLENISKNCTIPQRDLNMAFPQALPLEKRCERFLQKSYRKLEKNPEKEEEHWARLQRYSLSLQRENFKK

SEQ ID NO. 14

MKGYYLKKGKIGKVPVRFLVDGAQVSVVHPNLWEEVTDGDLDTLQPFENVVKVANGAEMKILGVWDTAVSLGKLKL
 KAQFLVANASAEBAIIGTDLQDHNAILDFEH

SEQ ID NO. 15

MSFICGLQSAARNHVFFRNSLSNWRKCNLTASTSRGCHQVQVNHIVNKYQGLGVNQCDRWSFLPGNFHFYSTFNNK
RTGGLSSTKSKEIWRTSKCTVWDAFSRQLLIKEVTAVPSLSVLHPLSPASIRAIRNFHTSPRFQAAPVPLLLMIL
KPVQKLFALIVGRGIRKWWQALPPNKKEVVKENIRKNKWKFLGLSSFGLLFVVFFYFTHLEVSPITGRSKLLLLGKE
QFRLLESEYEAWMEEFKNDMLTEKDARYLAVKEVLCHLIECNKDVPGISQINWVIHVVDSPINAFVLPNGQMFVF
TGFLNSVTDIHQLSFLLGHEIAHAVLGHAEEKAGMVHLLDFLGMIFLTMIWAI CPRDSLALLCQWIQSKLQEYMFNR
PYSRKLEAEADKIGLLAAKACADIRASSVFWQQMEFVDSLHGQPKMPEWLSTHPSHGMRVEYLDRLIPQALKIREM
CNCPLSNPDPRLLFKLSTKHFLEESEKEDLNITKKQKMDTLPIQKQEQIPLTYIVEKRT

SEQ ID NO. 16

MNNLSFSELCCFLCCPPCPGKIASKLAFLPPDPTYTLMCDESGSRWTLHLSEADWQYSSREKDAIECFMTRTSKGN
RIACMFVRCSPNAKYTLFSGHNAVLDGQMSFYIGLGSRLNCNIFSVDYSGYGASSGKPTKKNLYADIEAAWLALR
TRYIRPENVIYQSIGTVPVSDLAARYESAIVLHSPLTSGMRVAFPDTKKTYCFDAFPNIDKISKITSPVLIHIG
TEDEVIDFSHGLALFERCQRPVEPLWVEGAGHNDVELYGYLERLKLQFVSQELV

SEQ ID NO. 17

GSGCLGAEKREGKNRWQGEASMERLLAQLCGSSAAWPLPLWEGDTTGHCFTQLVLSALPHALLAVLSACYLGTTPRSP
DYILPCSPGWRLRLAASFLLSVFPLLDLLPVALPPGAGPGPIGLEVLACVAAVAWISHSLALVWLAHSPHGHSRGP
LALALVALLPAPALVLTVLWHCQRGTLLPPLLPGPMPARLCLLILQLAALLAYALGWAAPGGPREPWAQEP LLPEDQE
PEVAEDGESWLSRFSYAWLAPLLARGACGELRQPQDICRLPHRLQPTYLARVFOAHWQEGARLWRALYGAFGRCYLA
LGLLKLVGTMGLFSGPLLLSLLVGFLEEGQEPLSHGLLYALGLAGGAVLGAVLQNYGYEYVYKVTLQARGAVLNILY
CKALQLGPSRPPTGEALNLLGTDSERLNLFAGSFHEAWGLPLQLAITLYLLYQQVGVAFFVGGILALLLVPNKVIA
TRIMASNQEMLQHKDARVKLVTELLSGIRVIKFCGWEQALGARVEACRARELGRLRVIKYLDAAACVYLWAAALPVVIS
IVIFITYVLMGHQLTATKVFTALALVRMLILPLNFPWVINGLLEAKVSLDRIQLFLDLPNHNPPQAYYSPDPPAEP
TVLELHGALFSWDPVGTSLTFISHLEVKKGMLVGIVGKVGCGKSSLLAAIAGELHRLRGRHVAVRGLSKGFGLATQE
PWIQFATIRDNILFGKTFDAQLYKEVLEACALNDDLSILPAGDQTEVGEKGVTLSSGGQRRARIALARAVYQEKELYLL
DDPLAAVDADVANHLLHRCILGMLS YTTLLCTHRTYLERADAVLLMEAGRLIRAGPPSEILPLVQAVPKAWAENG
QESDSATAQSVQNPEKTKEGLEEEQSTSGRLLQESKKEGAVALHVVYQAYWKAVGQGLALAILFSLLLMQATRNAAD
WWLSHWISQLKAENSSQEAQ PSTSPASMG LFSPLQLLLFSPGNLYIPVFPPLPKAAPNGSSDIRFYLT VYATIAGVNSL
CTLLRAVLFAAGTLQAAATLHRRLLHVRVLMAPVTFNATPTGRILNRFSSDVACADDSLPFILNILLANAAGLLGLL
AVLGSGLPWLLLLLPLLSIMYYHVQRHYRASSRELRLGSLTSLPLYSHLADTLAGLSVLRATGATYRFEENLRL
ELNQRQCQFATSATMQWLDIRLQLMGAAVVSAIAGIALVQHQQGLANPGLVGLSLSYALSITGLLSGLVSSFTQTEAM
LVSVERLEEYTCDLQPQEPQQLGTGWLTQGGVEFQDVVLA YRPGLPNALDGVTF CVQPGEKLGIVGRTGSGKSS
LLLVLFRLLPSSSGRVLLDGVDTSQLELAQLRSQALAIIPQEPFLFSGTVRENLDPQGLHKDRALWQALKQCHLSEVI
TSMGGLDGELEGGRSLSLGQRQLCLARALLTDKILCIDEATASVDQKTDQLLQQTICKRFANKTVLTIHRLNT
ILNSDRVLVLQAGRVVELDSPATLRNQPHSLFQQLQSSQGGVPASLGGP

SEQ ID NO. 18

MAAVRVLVASRLAAASFTSLSPGGRTPSQRAALHLSVPRPAARVALVLSGCGVYDGTEIHEASAILVHLSRGGAEV
QIFAPDVPQMVIDHTKGQPSGESRNVLTESARIARGKITDLANLSAANHDAAI FPGGFGAAKNLSTFAVDGKDCK
VNKEVERVLKEFHQAGKPIGLCCIAPVLAAKVLRGVEVTVGHEQEEGGKWPYAGTAEAIKALGAKHCVKVSLRSVL
GGFFRNSAHEAHVDQKNKVTTTAPFMCETALHYIHDGIGAMVRKVLELTGK

SEQ ID NO. 19

MAELTALES LIEMGFPRGRAEKALALTGNQGIEAAMDWLMEHEDDPDVDEPLETPLGHILGREPTSSEQGGLEGSGS
AAGEGKPALSEEERQEQTKRMLELVAQKQREEREEREEREALERERQRRRQGLSAAARQLQEDEMRRAAEERRREK
AEELAAQRVREKIERDKAERAKKYGGSVGSQPPVAPPEPGVPSSPSQEPPTKREYDQCRIQVRLPDGTSLTQTFR
AREQLAAVRLVVELHRGEELGGQDPVQLLSGFPRAAFSEADMERPLQELGLVPSAVLIVAKKCP

SEQ ID NO. 20

QVKLKIPFGNKLDDAVCLVPNKSLTYGIILTHGASGDMNPLPHLSLASHLASHGFFCLRFTCKGLNIVHRIKAYKSV
LNYLKTSGEYKLAGVFLGGRSMGSRAAASVMCHIEPDGDDFVRGLICISYPLHHPKQHKLRDEDLFRLKEPVLFV
SGSADEMCKEKNLLEKVAQKMQAPHKIHWIEKANHSMVAKGRSTNDVFKEINTQILFWIQEITEMDKK

SEQ ID NO. 21

MNGLSSELCCFLCCPPCPGRIAAKLAFLPPEATYSVLTEPEPGPGGAGAAPLGTLRASSGAPGRWKLHLTERADFQ
YSQRELDTIEVFPTKSARRNRVSCMYVRCVTGARYTVLFSHNAVDLGQMSFYIGLGSRLHCNIFSVDYSGYGASS

GRPSERNLYADIDAAWQALRTRYGISPDSSIILYQSGISGTVPTVDLASRYECAAVVLHSPLTSGMRVAFPDTKKTYCF
DAFPNIEKVKITSPVLIHGTEDVIDFSHGLALYERCPKAVEPLWVEGTRHNDIELYSQYLEGLRRFISQEL

SEQ ID NO. 22

AQGKDQMWYEDALASSHPILYLHGNAGTRCLFFFTLQVLSSSLGYHVVTFDYRGWGDSVGTSPSERGMTYDALHVFWDWI
KARSGDNPVYIWGHSLGTGATNLVRRRCERETPPDALILESPTNIREEAKSHPFISIYRYFPGFDWFFLDPIITSSG
IKFANDENVKHISCPILLILHAEDDPVVPFQLGRKLYSIAAPARSFRDFKVQFVPFHSDLGVRHXYIYKSPELPRILR
EFLGKSEPEHQH

SEQ ID NO. 23

MDASIMDGKDLASAGAVSAVQCIANPIKLARLVMKTPHCFLTDQGAQAFAAAMGVPEIPGEKLVTERNKKRLEKEKH
EKGAQKTDQCQNLGTGVALDCKGNVAYATSTGGIVNKMVGRVGDSPCLAGAGGYADNDIGAVSTTGHGESILKVN
LARLTLFHIEQGKTVEEAADLSLGYMKSRVKGLGGLIVVSKTGDWVAKWTSTSMPWAAAKDGKLFHGIDPDDTTITD
LP

SEQ ID NO. 24

MLRGVLGKTFRLVGYTIQYGCIAHCAFEYVGGVVMCSGSPMEPTIQNSDIVFAENLSRHFYGIQRGDIVIAKSPSDP
KSNICKRVIGLEGDKILTTSPSDFFKSHSYVPMGHVWLEGDNLQNSTDSRCYGPPIPYGLIRGRIFFKIWPLSDFGFL
RASPNGHRFSDD

SEQ ID NO. 25

MMDSPKIGNGLPVIGPGTDIGISSLHMVGYLGKNFDSAKVPSDEYCPACREKGLKALKTYRISFQESIFLCEDLQC
IYPLGSKSLNNLISPDLIECHTPHKPQKRKSLESSYKDSLLANSKKTRNYIAIDGGKVLNSKHNGEVYDETSSNLP
DSSGQONPIRTADSLERNEILEADTVDMATTKDPATVDVSGTGRPSPQNEGCTSKLEMPLESKCTSFPPQALCVQWKN
AYALCWLDICLSALVHSEELKNTVTGLCSKEESIFWRLLTKYNQANTLLYTSQLSGVKDGDCKKLTSEIFAEIETCL
NEVRDEIFISLQPQLRCTLGDMESPVFAPFLLLKLETHIEKFLYSFSWDFECSQCGHQYQNRHMKSLVTFNTVIPE
WHPLNAAHFGPCNNCNSKSQIRKMVLEKVSPIFMLHFVEGLPQNDLQHYAFHFEGCLYQITSVIQYRANNHFITWIL
DADGNWLECDLKGPCSERHKKFEVPASEIHIVIWERKISQVTDKEAACPLKKTNDQHALSNEKPVSLTSCSVGDA
ASAETASVTHPKDISVAPRTLSDQTAVTHGDHLLSGPKGLVDNILPLTLEETIQKTASVSQNLSEAFLENKPVAN
TGILKTNLTLLSQESLMASVSAPCNEKLIQDQFVDISFSPQVNTNMQSVQLNTEDTVNTKSVNNTDATGLIQGVKS
VEIEKDAQLKQFLTPKTEQLKPERVTSQVSNLKKKETTADSQTTTSKSLQNLKENQKKPFVGSWVKGLISRGASF
MPLCVSAHNRNTITDLQPSVKGVNFGGFKTKGINQKASHVSKKARKSASKPPPISKPPAGPPSSNGTAAHPHAHAA
SEVLEKSGSTSCGAQLNHSSYGNGISSANHEDLVEGQIHKLRKLKRLKKAEEKKLAALMSSPQSRTVRSENLEQVP
QDGSPPNDCESEDNLNLPYPIDIASESACTTVPGVSLYSSQTHEEILAELLSPTPVSTELSENGEGDFRYLGMGDSH
IPPPVPSEFNDVSQNTHLRQDHNYSPTKKNPCQVQPSLTNNACVRTLNLSPMKTDIFDEFFSSSALNALANDTL
DLPHFDEYLFENY

SEQ ID NO. 26

MLTGVTGIFCCLLGTTPNAVGPLESVESSDGYTFVEVKPGRVLRVKHAGPAPAAAPPPSSASSDAAQGDLSGLVR
CQRRITVYRNGRLLVENLGRAPRADLLHGQNGSGEPAPALEVELADPAGSDGRAPGSAGSGSGSGSGRRRRRRARRP
KRTIHIDCEKRITSCKGAQADVVLFFIHGVGGSIAIWKEQLDFFVRLGYEVVAPDLAGHGASSAPQVAAAYTFYALA
EDMRAIFKRYAKKRNVLIGHSYGVSFCTFLAHEYDPLVHKVIMINGGGPTALEPSFCSIFNMPTCVLHCLSPCLAWS
FLKAGFARQGAKEKQLLKEGNAFNVSSFVLRAMMSGQYWPEGDEVYHAELTPVLLVHGMHDKFVPVEEDQRMABEIL
LLAFLKLIDEGSHVMLECPETVNTLLHEFLLEPEPSPKALPEPLPAPPEDKK

SEQ ID NO. 27

MRRQWGSAMRAAEQAGCMVSASRAGQPEAGPWSCSGVILSRSPGLVLCHGGIFVPFLRAGSEVLTAGAVFLPGDSCR
DDLRLHVQWAPTGAPRGQARTGPPRLARPMRDLSPPPPSQASLSQSCDWITETLGFALLGVRLGQEEWRRRGPMMA
VSPLGAVPKGAPLLVCGSPFGAFCPDIFLNTLSGVLNSVAGPLLLTDARCLPGTEGGGVFTARPAGALVALVVAPL
CWKAGEWVGFTLLCAAAPLFRAARDALHRLPHSTAALAALLPPEVGVPWGLPLRDSGPLWAAAALVECGTVWGSV
AVAPRLVVTCTRHVSPREARVLVRSTTPKSVAIWGRVVFATQETCPYDIAVVSLEEDLDDVPIPVPAEHFHEGEAVS
VVGFGVFGQSCGSPVTSGLISAVVQVNGTPVMLQTTCAVHSGSSGGPLFSNHSNLLGIITSNTRDNNTGATYPHLN
FSIPITVLQPALQYQSQTQDLGGLRELDRAAEFVRVWRLQRPLAEAPRSKL

SEQ ID NO. 28

MAVARLAAVAAWVPCRSWGWAAPVFGPHRGLSVLLARIPQRAPRWLPACRQKTSLSFLNRPDLNLAYKKLKKGKSPG
IIFIPGYLSYMNKTKALAEIEFCKSLGHACIRFDYSGVGSSDGNSEESTLGKWRKDVLSIIDDLADGPPQILVGSSLG

GWLMLHAAIARPEKVVALIGVATADTLVTKFNQLPVELKKEVEMKGVWSMPSKYSEEGVYNVQYSFIKEAEHHCLLH
SPIPVNCPIRLLHGMKDDIVPWHTSMQVADRVLSTDVDVILRKHSDHRMREKADIQLLVYTIDDLIDKLSTIVN

SEQ ID NO. 29

QQGSITLSLWTLDPVLI IHLKRFRQEGDRRMKLQNMVKFPLTGLDMTPHVVKRSQSSWSLPSHWSPWRRPYGLGRDP
EDYIYDLYAVCNHGHGTMQGGHYTAYCKNSVDGLWYCFDDSDVQQLSEDEVCTQTAYILFYQRRTAIPWSANSSVAG
STSSSLCEHWVSRLPGSKPASVTSAASSRRTSLASLSESVEMTGERSEDDGGCFSTRPFVRSVQRQSLSSRSSTSP
LAVNENCMRPSWSLSAKLQMRNSNSPSRFSGDSP IHSSASTLEKIGEADDKVSISCFLSLRNLSSSYQEPSDSHSLR
EHKAVGRAPLAVMEGVFKDES DTRRLNSSVVD TQSKHSAQGDRLPPLSGPFDNNNQIAYVDQSDSDSSPVKEVKAP
SHPGSLAKKPESTTKRSPSSKGTSEPEKSLRKGRPALASQESSLSSTSPSSPLPVKVS LKPSRSRSKADSSSRGSGR
HSSPAPAQPKKESSPKSQSDSVSSPSQKQKSASALTYTASSTS AKKASGPATRSFPFPKSRSTSDHLSREGSRQSL
GSDRASATSTSKPNSPRVSQARAGEGRGAGKHVRSSSMASLRSPSTS IKSGLKRDSKSEDKGLSFFKSALRQKETRR
STD LGKTALLSKKAGSSSVKSVCKNTGDDAEERGHQPPASQQPNANTTGKEQLVTKDPASAKHSLLSARKSKSSQLD
SGVPSSPGGRQSAEKSSKLLSSSMQTSARPSQKPKQ

SEQ ID NO. 30

MCGIWALFGSDDCLSVQCLSAMKIAHRGPDAFRFENVNGYTNC CFGHRLAVVDPLFGMQPIRVKKYPYLWLCYNGE
IYNHKKMQQHF EF EYQTKVDGEI I LHL YDKGGIEQTICMLDGVFAFVLLDTANKKVFLGRD TYGVRPLFKAMTEDGF
LAVCSEAKGLVTLKHSATPFLKVEPFLPGHYEVL DLKPNKVASVEMVKYHHC RDVPLHALYDNVEKLFPGFEIETV
KNNLRILFNNAVKKRLMTDRRIGCLLSGGLDSSLVAATLLKQLKEAQVQYPLQTFAIGMEDSPDLLAARKVADHIGS
EHYEVLFNSEEGIQALDEVIFSL ETYDITTVRASVGMYLISKYIRKNTDSV VIFSGEGSDEL TQGYIYFHKAPSPEK
AEEESERLLRELYLFDVLRADRTTAAHGLELRVPFLDHRFSSYYLSLPPEMRI PKNGIEKHLRET FEDSNLIPKEI
LWRPK EAFSDGITSVKNSWFKILQEYVEHQVDDAMMANAAQKFPFNTPKTKEGYYYRQVFERHYPGRADWLSHYWMP
KWINATDPSARTLTHYKSAVKA

SEQ ID NO. 31

QANCQIAILYQRFQRVVFGISQLLCSALISELTNQKEVAAWTYHYSTKAYSWNISRKYCQNR YTDLVAIQNKNEID
YLNKVLPYYSSYYWIGIRKNNKTWTWVGTKALTNEAENWADNEPNNKRNNEDCVEIYIKSPSAPGKWNDEHCLKKK
HALCYTASCQDMSCSKQGECL ETIGNYTCSCYPGFYGPCECEYVRECGELELPQHVL MNCSHPLGNFSFNSQCSFHCT
DGYQVNGPSKLECLASGIWTKNPQCLAAQCPLKIPERGNMTCLHSAKAFQHQS SCSFSCEE GFALVGPEVVQCTA
SGVWTAPAPVCKAVQCQHLEAPSEGTMDCVHPLTAFAYGSSCKFECQPGYRVRGLDMLRCIDSGHWSAPLPTCEAIS
CEPLESPVHGSMDCSPSLRAFYQD TNC SFRCAEGFMLRGADIVRC DN LGQWTAPAPVCQALQCQDL PVPNEARVNC S
HPFGAFRYQSVCSFTCNEGLLLVGASVLQCLATGNWNSVPPECQAI PCTPLLS PQNGTMTCVQPLGSSSYKSTCQFI
CDEGYSLSGPERLDCTRSGRWTDSPPMCEAIKCPELFAPEQGS LDCSDTRGEFNVGSTCHFSCDNGFKLEGPNNVEC
TTSGRWSATPPTCKG IASLPTPGVQCPAL TTPGQGTMYCRHHPGTGFGNTTCYFGCNAGFTLIGDSTLSCRPSGQWT
AVTPACRAVKCSELHV NKP IAMNCSNLWGNFSYGS ICSFHCLEGLLNGSAQTACQENGHWSTTVPTCQAGPLTIQE
ALTYFGGAVASTIGLIMGGTLLALLRKRFRQKDDGKCPLNPHSHLGT YGVFTNAAFDPSP

SEQ ID NO. 32

MLRGP GPGLLLLAVQCLGTAVPSTGASKSKRQAQQM VQPQSPVAVSQSKPGCYDNGKHYQINQQWERTYLGNALVCT
CYGGSRGFNCE SKPEAEETCFDKYTGN TYRVGD TYERPKDSMIWDCTCIGAGRGRISCTIANRCHEGGQSYKIGDTW
RRPHETGGYMLECVCLGNGKG EWTCPIAEKCFDHAAGTSYVVGETWEKPYQGWMMVDCTCLGEGSGRITCTSRNRC
NDQDTRTSYRIGDTWSKKDNRGNLLQCICITGNRGGEWK CERHTSVQTTSSGSGPFTDVRAAVYQPQPHQP PYPYGH
VTD SGVVYSVGMQWLKTQGNKQMLCTCLGNGVSCQETA VTQTYGNSNGEPCVLPFTYNGRTFYSC TTEGRQDGH LW
CSTTSNYEQDQKYSFCTDHTVLVQTRGGNSNGALCHFPFLYNNHNYTDCTSEGRDNMKWCGTTQNYDADQKFGFCP
MAAHEEICTTNEGVMYRIGDQWDKQHDMGHMMRCTCVGNRGGEWTCIAYSQLRDQCI VDDITYNVNDTFHKRHEEGH
MLNCTCFGQGRGRWKCDPVDQCDSETGTFYQIGDSWEKYVHGVRYQCYCYGRGIGEWHCQPLQTYPSSSGPVEVFI
TETPSQPN SHPIQWNA PQPSHISKYILRWRPKNSVGRWKEATIPGHLNSYTIKGLKPGVVYEGQLISIQQYGHQEV
RFDFTTTSTSTPVTSTNTVTGETT PFSPLVATSESVTEITASSFVVSWSASDTVSGFRVEYELSEEGDEPQYLDLPS
TATSVNIPDLLPGRKYIVNVYQISEDGEQSLILSTSQTAPDAPPD TTV DQVDDTSIVVRWSRPQAPITGYRIVYSP
SVEGSSTELNLPETANSVTLSDLQPGVQYNITIYAVEENQESTPVVIQETTGT PRSDTVPSPRDLQFVEVTDVKVT
IMWTPPE SAVTGYRV DVI PVNLPGEHGQRLPISRNTFAEVTGLSPGVTYFYKFVFAVSHGRESKPLTAQQTTKLDAPT
NLQFVNNETDSTVLVRWTPPRAQITGYRLTVGLTRRGQPRQYVNSQPSVSKYPLRNLQPASEYTVSLVAIKGNEYESPKA
TGVTFTTLQPGSSIPPYNTVETTITVITWTPAPRIGFKLGVRPSQGG EAPREVTSDSGSIVVSGLT PGVEYVYTIQV
LRDNLQERDAPIVNKVVTPLSPTNLHLEANPDTGVLTVSWERSTTPDITGYRI TTTPTNGQQGNSLEEVVHADQSSC
TFDNLSPGLEYNVSVYTVKDDKESVPI SDTII PAVPPPTDLRFTNIGPD TMRVTWAPPPSIDLTNFLVRYSPVKNEE
DVAELSI SPSDNAVVL TNLLPGTEYVVS SVSSVYEQHESTPLRGRQKTGLDSPTGIDFSDITANSFTVHWIAPRATIT

GYRIRHHPEHFSGRPREDRVPHSRNSITLTNLTPGTEYVVSIVALNGREESPLLIGQQSTVSDVPRDLEVVAATPTS
 LLISWDAPAVTVRYRITYGETGGNSPVQEFVTPGSKSTATISGLKPGVDYITITVYAVTGRGDSPASSKPI SINYRT
 EIDKPSQMQVTDVQDNSISVKWLPSSSPVTGYRVTTTPKNGPGPTKTKTAGPDQTEMTIEGLQPTVEYVVSVAQNP
 SGESQPLVQTAVTNIDRPKGLAFTDVDVDSIKIAWESPQQQVSRYRVTYSSPEDGIHELFPAPDGEEDTAELOGLRP
 GSEYTVSVVALHDDMESQPLIGTQSTAIPAPTDLKFTQVTPTSLSAQWTPPNVQLTGVRVRVTPKEKTGPMKEINLA
 PDSSSVVVSGLMVATKYEVSVYALKDTLTSRPAQGVVTTLENVSPPRRARVTDATETTITISWRKTETITGTFQVDA
 VPANGQTPIQRTIKPDVRSYTTITGLQPGTDYKIYLYTLNDNARSSPVVIDASTAIDAPSRLRFLATTPNSLLVSWQP
 PRARITGYIIKEYEKPSPPREVVPRPRPGVTEATITGLEPGTEYTIYVIALKNNQKSEPLIGRKKTDLPQLVTLPH
 PNLHGPEILDVPSTVQKTPFVTHPGYDTGNGIQLPGTSGQQPSVGGQMI FEEHGFRRTTPPTTATPIRHRPRPYPPN
 VGEI IQIGHIPREDVDYHLYPHGPGLNPNASTGQEALSQTTISWAPFQDTSEYIISCHPVGTDEEPLQFRVPGTSTS
 ATLTGLTRGATYNVIVEALKDQQRHKVREEVVTVGNSVNEGLNQPTDDSCFDPYTVSHYAVGDEWERMSESGFKLLC
 QCLGFGSGHFRCDSSRWCHDNGVNYKIGEKWDRQGENGQMMSCCTCLGNGKGEFKCDPHEATCYDDGKTYHVGEQWQK
 EYLGAICTCTCFGGQGRWRCNCRPPGGEPSPEGTTGQSYNQYSQRYHQRTNTNVNCPICEFMPPLDVQADREDSRE

SEQ ID NO. 33

RYNKNLEEAKRIGIKKAITANISIGAAFLLIYASYALAFWYGTTLVLVSGEYSIGQVLTVFFSVLIGAFSVGQASPSI
 EAFANARGAAEYIFKIIDNKPSIDSYKSGHKPDNIKGNLEFRNVHFSYPSRKEVKILKGLNLKVQSGQTVALVNS
 GCGKSTTVQLMQRLYDPTGEMVSDGQDRTINVRFLREIIGVVSQEPVLFATTIAENIRYGRENVMTDEIEKAVKE
 ANAYDFIMKLPKHFDTLVGERGAQLSGGQKQRIAIARALVRNPKILLDEATSALDTESEAVVQVALDKARKGRTTI
 VIAHRLSTVRNADVAGFDDGVIVEKGNHDELMKEKGIYFKLVMTQDESIPPVSFWRIMKLNLTWPYFVVGVFCAI
 INGGLQPAFAIIFSKIIGVFTRIDDPETKRQNSNLSLFLALGIISFITFFLQGFTEGKAGEILTKRLRYMVFRSM
 LRQDVSWFDDPKNTTGALTTRLANDAAQVKAIGSRLAVITQNIANLGTGIIISFIYGWQLTLLLLAIVPIIAIAGV
 VEMKMLSGQALKDKKELEGSGKIAEAIENFRTVVSILTQEQKFHEMYAQSLQVPYRNSLRKAHIFGITFSFTQAMMY
 PSYAGCFRFGAYLVAHKLMSFEDVLLVFSAVVFGAMAVGQVSSFAPDYAKAKISAAHIIMIIEKTPLIDSYSTEGLM
 PNTLEGNVTFGEVVFNYPTRPDIPVLQGLSLEVKKQTLALVGSSGCGKSTVVQLLERFYDPLAGKVLI CELFQLLD
 GKEIKRLNVQWLRAHLGIVSQEPILFDCSIAENIAYGDNRSRVVSQEEIVRAAKEANIHAIESLPNKYSTKVGDGKT
 QLSGGQKQRIAIARALVRQPHILLDEATSALDTESEKVVQEQALDKAREGRTCIVIAHRLSTIQNADLIVVFQNGRV
 KEHGTHQQLLAQKGIYFSMVSQAGTKRQ

SEQ ID NO. 34

MSLSFCGNNISSYNINDGVLQNSCFVDALNLVPHVFLFITFPILFIGWGSQSSKVQIHHNTWLHFPGHNLRWILTF
 ALLFVHVCEIAEGIVSDSRRESRHLHLFMPAVMGFVATTTSIVYYHNIETSNFPKLLALFLYVWMAFITKTIKLVK
 YCQSGLDISNLRFCITGMMVILNGLLMAVEINVIRVRRYVFFMNPQKVKPPEDLQDLGVRFLQPFVNLLSKATYWW
 NTLIISAHKPIDLKAIGKLPAMRAVTNYVCLKDAYEEQKKKVADHPNRTPSIWLAMYRAFGRPILLSSTFRYLAD
 LLGFAGPLCISGIVQRVNETQNGTNNTTGISETLSSKEFLENAYVLAVLLFLALILQRTFLQASYYVTIETGINLRG
 ALLAMIYINKILRLSTSNLSMGEMTLGQINNVAIETNQLMWFLFLCPNLWAMPVQIIMGVILLYNLLGSSALVGA
 IVLLAPIQYFIATKLAEQKSTLDYSTERLKKTNEILKGIKLLKYAWEHIFCKSVEETRMKELSSLKTFALYTSLS
 SKLLTPFFAQTFVTHAYASGNLKPAAEFASLSLPHILVTPFLSTVVRFAVKAIISVQKLNELLSDEIGDDSWR
 TGESSLPFESCKHTGVQPKTINRKQPGRYHLDSYEQSTRRLRPAETEDIAIKVTNGYFSWGSGLATLSNIDIRIPT
 GQLTMIVGVQVCGKSSLLAILGEMQTLGKVHWSKYVYFYRNRYSVAYAAQKPWLLNATVEENITFGSPFNKQRYK
 AVTDACSLQPDIDLLPFGDQTEIGERGINLSGGQQRICVARALYQNTNIVFLDDPFSALDIHLSDHLMQEGILKFL
 QDDKRTLVLVTHKLQYLTHADWIIAMKDGSVLREGTLKDIQTKDVELYEHWKTLMNRQDQELEKDMQADQTTLERKT
 LRRAMYSREAKAQMEDEDEEEEEDEDDNMSTVMRLRTKMPWKTCWRYLTSGGFFLLILMIFSKLLKHSVIVAIDY
 WLATWTSEYSINNTGKADQTYVAGFSILCGAGIFLCIVTSLTVEWMGLTAAKNLHHNLLNKIILGPIRFFDTPPLG
 LILNRFSAADTNIIDQHIPPITLESLTRSTLLCLSAIGMISYATPVFLVALLPLGVAFYFIQKYFRVASKDLQELDDST
 QLPILLCHFSETAEGLTITIRAFRHETRFKQRMLELTDNTNIAYLFLSAANRWLEVRTDYLACIVLTASIASISGSSN
 SGLVGLGLLYALTITNYLNWVVRNLADLEVQMGAVKKVNSFLTMESENYEGTMDPSQVPEHWPQEGEIKIHDLCVRY
 ENNLKPVVKHVYKAYIKPGQKVGICGRTGSGKSSLSLAFFRMVIDFDGKIVIDGIDISKPLPLHTLSRSLIILQDPIL
 FSGSIRFNLDPCKCTDRLWEALEIAQLKNMVKSLPGGLDAVVTEGGENFSVGQRQLFCLARAFVRKSSILIMDEA
 TASIDMATENILQKVMTAFADRTVVTIAHRVHTILTADLVIVMKRGNILEYDTPESLLAQENGVFASFVRADM

SEQ ID NO. 35

RAELVALTAVQSEQGEAGGGGSPRRLGLLGSPLPPGAPLPGPGSGSGSACGQRSSAAHKRYRRLQNWGYNVLERPRG
 WAFVYHVFI FLLVFSCLVLSVLSTIQEHQELANECLLILEFVMIVVFGLEYIVRVWSAGCCCRYRGWQGRFRFARKP
 FCVIDFIVFVASVAVIAAGTQGNIFATSALRSMRFLQILRMVRMDRRGGTWKLLGSSVVAHASKELITAWYIGFLVLI
 FASFLVYLAEKDANSDFSSYADSLWWTITLTITIGYGDKTPHTWLGRVLAAGFALLGISFFALPAGILGSGFALKVQ
 EQHRQKHFEKRRMPAANLIQAARLYSTDMRAYLTATWYYYDSILPSFRELALLFEHVQRRARNGGLRPLEVRRAPV

KQAKVWNTYELDLVNYQNKCRLLIRGWDDLFNKKVKEHINSVSAMKLSPPYKVFEEADLSWEDKLNRIALFDVWIDVQ
 RRWVYLEGIFTGSADIKHLLPVETQRFQSISTEFLALMKVSKSPLVMDVLNIQGVQRSRLERLADLLGKIQKALGEY
 LERERSSFRPFYFVGDEDLLEIIGNSKNVAKLQKHFKKMFAGVSSIILNEDNSVVLGISSREGEVFMFKTPVSITEH
 PKINEWLTLEKEMRVTLAKLLAESVTEVEIFGKATSIDPNTYITWIDKYQAQLVVLSAQIAWSENVELTSSMGGG
 GDAAPLHSVLSNVEVTLNVLADSVLMEQPPLRRRKLEHLITELVHQDVTRSLIKSKIDNAKSFEWLSQMRFYFDPK
 QTDVLQQLSIQMANAKFNYGFEYLGVDKLVQTPLTDRCYLTMTQALEARLGGSFPGPAGTGKTESVKALGHQLGRF
 VLVFNCDETFDFQAMGRIFVGLCQVGAWGCFDEFNRLEERMLSAVSQQVQCIQEALREHSNPNYDKTSAPITCELLN
 KQVKVSPDMAIFITMNPAYAGRSNLPDNLKKLFRSLAMTKPDRQLIAQVMLYSQGFRTAEVLANKIVPFFKLCDLQ
 SSQSHYDFGLRALKSVLVSAGNVKREIRIQIKREKEERGEAVDEGEIAENLPEQEILIQSVCEMVPKLVAEIDPLL
 FSLSDVFPVGVQYHRGEMTALREELKKVCQEMLYTYGDGEEVGGMWVEKVLQLYQITQINHGLMMVGPSSGSKSMAW
 RVLLKALERLEGVEGVAHIIDPKAISKDHLGYTLDPNTREWTDGLFTHVLRKIIDSVRGELQKRQWIVFDGDVDPEW
 VENLNSVLDDNKLTLTPNGERLSLPPNVRIMFEVQDLKYATLATVSRGCMVWFSEDLVSTDMIFNNFLARLRSIPLD
 EGEDEAQRRRKGKEDEGEEAASPMLQIQRDAATIMQPYFTSNGLVTKALEHAFQLEHIMDLTRLRCLGSLFSLMLHQA
 CRNVAQYNANHPDFPMQIEQLERYIQRYLVYAILWSLSGDSRLKMRAELGEYIRRIITTVPLPTAPNIPIDYEVSIS
 GEWSPWQAKVPQIEVETHKVAAPDVVPTLDTVRHEALLYTWLAEHKPLVLCGPPGSGKTMTLFSALRALPDMEVVG
 LNFSSATTPELLEKTFDHYCEYRTPNGVVLAPVQLGKWLVLFCDEINLPMDKYGTQRFVISFIRQMVEHGGFYRTS
 DQTVWKLRIQFVGACNPPTDPGRKPLSHRFLRHVPVYVDYPGPASLTQIYGTFNAMLRLIPLSLRTYAEPLTAAM
 VEFYTMSQERFTQDTQPHYIYSPREMTRWVRGIFEALRPLETLPEGLIRIWAHEALRLFQDRLVEDEERRWTDENI
 DTVALKHFPNIDREKAMSRPILYSNWLKDYIPVDQEEELRDYVKARLKVFEYEEELDVPLVLFNEVLHDVLRIDRIFR
 QPQGHLLIGVSGAGKTTLRSFVAMNGLSVYQIKVHRKYTGEDFDEDLRTVLRSSGCKNEKIAFIMDESNVLDSGF
 LERMNTLLANGEVPLFEGDEYATLMTQCKEGAQKEGLMLDSHEELYKWFTSQVIRNLHVFTMNPSSSEGLKDRAAT
 SPALFNRCVLNWFWDWSTEALYQVGKEFTSKMDLEKPNYIPDYMPPVYDKLPQPPSHREAIVNSCVFVHQLHQA
 ARLAKRGGRMTAITPRHYLDFINHYANLFHEKRSELEEQQMHLNVGLRKIKETVDQVEELRRDLRIKSQSELEVKNAA
 ANDKLKMKVKDQQAEEKKKVMSQEIQEQLHKQQEVIAQKMSVKEDLDKVEPAVIEAQNAVKSIKKQHLVEVRSMAN
 PPAVKLALESICLLLGESTTDWKQIRSIIMRENFIPTIVNFSAAEISDAIREKMKKNYMSNPSYNYEIVNRASLAC
 GPMVKWAIQALNYADMLKRVEPLRNLQKLEDDAKDNQKANEVEQMIRDLEASIAKYKEEYAVLISEAQAIKADLA
 AVEAKVNRSTALLKSLSAERERWEKTSETFKNQMSIAGDCLLSAAFIAYAGYFDQQMRQNLFTTWSHHLQQANIQF
 RTDIARTEYLSNADRLRWQASSLPADDLCTENAIMLKRFRNRYPLIIDPSGQATEFIMNEYKDRKIRTRTSFLDDAFR
 KNLESALRFGNPLLVQDVEYDPVLNPNVLRREVRRRTGGRVLIITLGDQDIDLSPSFVIFLSTRDPTVEFFPDLCRSVT
 FVNFTVTRSSLQSQCLNEVLKAERPVDDEKRSDDLKLQGEFQLRLRQLEKSLQLALNEVKGRILDDDTIITITLENLK
 REAAEVTRKVEETDIVMQEVETVSQQYLPSTACSSYFTMESLQKIHFLYQYSLQFFLDIYHNVLNPNLKGVT
 HTQRLSIITKDLFQVAFNRVARGMLHQDHITFAMLLARIKLGTVGEPTYDAEFQHFRLRGNEIVLSAGSTPRIQGLT
 VEQAEEAVVRLSCLPAFKDLIAKVQADEQFGIWLDDSSPEQTVPYLWSEETPATPIGQAIHRLLLIQAFRPDRLLAMA
 HMFVSTNLGESFMSIMEQPLDLTHIVGTEVKPNTPVLMCSVPGYDASGHVEDLAAEQNTQITSIAIGSAEGFNQADK
 AINTAVKSGRWMLKNVHLAPGWLMLQLEKKLHSLQPHACFRFLTMEINPKVPVNLRLRAGRIFVFEPGGVKANMLR
 TFSSIPVSRICKSPNERARLYFLLAWFHAIQERLRYAPLGWSKKYEFGESDLRSACDTVDTWLDDTAKASGRQNIS
 PDKIPWSALKTLMAQSIYGGVRDNEFDQRLNLTFLERLFTTRSFDFSEFKLACKVDGHKDIQMPDGIRREEFVQWVEL
 LPDTQTPSWLGLPNAERVLLTTQGVDMISKMLKMQMLEDEDDLAYAETEKTRTDSTSDGRPAWMRTLHTTASNWL
 HLIPQTLSHLKRVTENIKDPLFRFFEREVKMGAKLLQDVRQDLADVVQVCEGKKKQTNYLRTLINELVKGILPRSWS
 HYTVPAGMTVIQWVSDFSERIKQLQNISLAAASGGAKELKNIHVCLGGLFVPEAYITATRQYVAQANSWSLEELCLE
 VNVTTSGATLDACSGVTGLKLQGATCNNNKLSSLNAISTALPLTQLRWVKQNTTEKKASVVTLPVYLNFTADLI
 FTVDFEAIATKEDPRSFYERGVAVLCTE

SEQ ID NO. 41

MANGVIPPFGGASPLPQVRVPLEEPPLSPDVEEEDDLGKTLAVSRFGDLISKPPAWDPEKPSRSYSERDFEFHRHT
 SHHTHHPLSARLPPPHKLRLRPPTSARHTRRKKEKTSAPPSEGTPPIQEEGGAGVDEEEEEEEEEEGESEAEPE
 PPHSGTPQAKFSIGSDEDDSPGLPGRAAVTKPLPSVGPHTDKSPQHSSSSPSPRARASRLAGEKSRPWSPSASYDL
 RERLCPSGALGNPGGPEQQVPTDEAEAQMLGSADLDDMKSHRLEDNPGVRRHLVKKPSRTQGGRGSPSLAPILRRK
 KKKKKLDRRPHEVFVELNELMLDRSQEPHWRETARWIKFEEDVEEETERWGKPHVASLSFRSLLELRRTIAHGAALL
 DLEQTTLPGIAHLVETMIVSDQIRPEDRASVLRLLLLKHSHPNDDKDSGFFPRNPSSSSMNSVLGNHHTPSHGP
 GAVPTMADDLGEPAPLWPHDPDAKEKPLHMPGGDGHGKSLKLEKIPEDAEATVVLVGCVPFLEQPAAAFVRLNEA
 VLLESVLEVPVPVRFLFVMLGPSHTSTDYHELGRSIATLMSDKLFHEAAYQADDRQDLLSAISEFLDGSIVIPPSEV
 EGRDLLRSVAAFQRELLRKRREREQTKVEMTTTGGYTAPGKELSLELGGSEATPEDDPLRTGSVFGGLVRDVRRY
 PHYPSDLRDALHSQCVAALVFIYFAALSPAITFGGLLGEKTEGLMGVSELIVSTAVLGVLFSLGGAQPLLVVGFSGP
 LLVFEEAFFKFCRAQDLEYLTGRVWVGLWLVVVFLALVAAEGSFLVRYISPFTQEIFAFLISLIFIYETFYKLYKVF
 TEHPLLPFPYPEGALEGSLDAGLEPNGSALPPTGPPSPRNQPNNTALLSLILMLGTFFIAFFLRKFRNSRFLGGKAR
 RIIGDFGIPISILVMVLVDYSITDITYTQKLTVPTGLSVTSPDKRSWFIPLGSAFPFPWMVMAAAMPALLVLILIF

METQITALIVSQARRLLKSGGFHLDLLIGSLGGLCGLFGLPWLTAATVRSVTHVNALTVMRTAIAPGDKPQIQEV
REQRTVGVLIASLVGLSIVMGAVLRRIPLAVLFGIFLYMGVTSLSGIQLSQRLLILIMPAKHHEQPYVTKVKTWRM
HLFTCIQLGCIALLWVVKSTAASLAFPFLLLLTVPLRHCLLPRLFQDRELQALDSEDAEPNFDDEDGQDEYNELHMPV

SEQ ID NO. 42

DWNVTWNTSNPDTKCFQNTVLVWVPCFYLWACFPFYFLYLSRHDRGYIQMTPLNKTKTALGFLWIVCWADLFYSF
WERSRGIFLAPVFLVSPDLLGITMLLATFLIQLERRKGVSQSSGIMLTFWLVALVCALAILRSKIMTALKEDAQVDLF
RDITFYVYFSLLLIQLVLSCFSDRSPLFSETIHDNPNCPESSASFLSRITFWWITGLIVRGYRQPLEGSDLWSLNKE
DTSEQVVPVLVKNWKKCAKTRKQPVKVYSSKDPAPQKESKVDANEEVEALIVKSPQKEWNPSLFKVLYKTFGPY
FLMSFFFKAIHDLMMFSGPQILKLLIKFVNDTKAPDWQGYFYTVLLFVTACLQTLVLHQYFHCIFVSGMRIKTAVIG
AVYRKALVITNSARKSSSTVGEIVNLSVDAQRFMDLATYINMIWSAPLQVILALYLLWNLGSPVLAGVAVMVLMPV
VNAVMAKTKTYQVAHMKSKDNRIKLMNEILNGIKVLKYAWELAFKDKVLAIRQEELKVLKKSAYLSAVGTFTWVC
TPFLVALCTFAVYVTIDENNILDAQTAFAVSLALFNILRFPLNILPMVISSIVQASVSLKRLRIFLSHEELEPDSEIER
RPVKDGGGTNSITVRNATFTWARSDDPPTLNGITFSIPEGALVAVVGQVGCCKSSLLSALLAEMDKVEGHVAIKGSA
YVPQQAWIQNDLRENILFGCQLEEPYRSVIQACALLPDLEILPSGDRTEIGEKGVNLSGGQKQRVSLARAVYSNA
DIYLFDDPLSAVDAHVGKHFENVIGPKGMLKNKTRILVTHSMSYLPQVDVIIVMSGGKISEMGSYQELLARDGAFA
EFLRTYASTEQEQAENGVTGVSGPGKEAKQMENGMLVTDTSAGKQLQRQLSSSSSYSGDISRHHNSTAELQKAEAK
KEETWKLMEADKAQTGQVKLSVYWDYMKAIGLFISFLSIFLFCMNHVSALASNYWLSLWTDDEPIVNGTQEHKVRLS
VYGALGISQGIIVFGYSMAVSIGGILASRCLHVDLLHSILRSPMSFFERTPSGNLVNRFSKELDTVDSMIPEVIKMF
MGSILFNVIGACIVILLATPIAAIIIPPLGLIYFFVQRFYVASSRQLKRLESVSRSPVYSHFNETLLGVSVIRAFEEQ
ERFIHQSDLKVDENQKAYYPSIVANRWLAVRLECVGNCIVLFAALFAVISRHSLSAGLVGLSVSYSLQVTTYLNWLV
RMSSEMETNIVAVERLKEYSETEKEAPWQIQETAPPSSWPQVGRVEFRNYCLRYREDLDFVLRHINVTINGGEKVG
VGRTGAGKSSLTLGLFRINESAEGEIIIDGINIAKIGLHDLRFKITIIPQDPVLFSGSLRMNLDPFSSQYSDEEVWTS
LELAHLKDFVSALPDKLDHECAEGGENLSVGQRQLVCLARALLRKTKILVLDEATAAVDLETDDLIQSTIRTQFEDC
TVLTIHRLNTIMDYTRVIVLDKGEIQEYGA PSDLLQQRGLFY SMAKDAGLV

SEQ ID NO. 43

FCRAQDLEYLTGRVWVGLWLVVFLALVAAEGSFLVRYISPFTQEIFAFLISLIFIYETFYKLYKVTFTEHPLLPFYF
PEPGVPGCWSGAKWQLPPTGEGPPSPRNQNTALLSLILMLGTFFIAFFLRKFRNSRFLGGKARRIIGDFGIPISIL
VMVLVDYSITDITYTQKLTVPGLSVTSPDKRSWFIPPLGSARFPFPWMMVAAVAPALLVLILIFMETQITALIVSQ
ARRLLKSGGFHLDLLIGSLGGLCGLFGLPWLTAATVRSVTHVNALTVMRTAIAPGDKPQIQEVREQRTVGVLIASL
VGLSIVMGAVLRRIPLAVLFGIFLYMGVTSLSGIQLSQRLLILIMPAKH

SEQ ID NO. 44

MAFWTQMLLLWKNFMYRRRQPVQLLVELLWPLFLFFILVAVRHSHPPLEHHECHFPNKPLPSAGTVPWLQGLICNV
NNTCFPQLTPGEEPGRLSNFNDLSVSRLLADARTVLGGASAHRTLALGKLIATLRAARSTAQPQPTKQSPLEPPML
DVAELLTSLLRTESLGLALGQAQEPLHSLLEAAEDLAQELLALRSLVELRALLQRPRGTSGPLELLSEALCSVRGPS
STVGPSLNWYEASDLMELVGQEPESALPDSSLPACSELIGALDSHPLSRLLWRRLKPLILGKLLFAPDTPFTRKLM
AQVNRTFEELTLRLDREVWEMLGPRIFTFMNDSSNVAMLQRLLMQDEGRQRPRPGGRDHMEALRSFLDPGSGGYS
WQDAHADVGLVGTGRVTECLSLDKLEAAPSEALVSRALQLLAEHRFWAGVFLGPEDESDDPTEHPTDLGPGHV
RIKIRMDIDVVRTNKRDRFWDPGPAADPLTDLRYVWGGFVYLQDLVERAAVRVLSGANPRAGLYLQOMPYPYCYVD
DVFLRVLSRSLPLFLTLAWIYSVTLTVKAVVREKETRLRDTMRAMGLSRVWLWGWFLSCLGPFLLSAALLVLVLKL
GDILPYSHPGVVFLFLAAFAVATVTQSFLLSAFFSRANLAAACGGLAYFSLYLPYVLCVAWRDRLPAGGRVAASLLS
PVAFGFGCESLALLEEQGEGAQWHNVGTRPTADVFSLAQVSGLLLLDAALYGLATWYLEAVCPGQYGIPEPWNFPFR
RSYWCGRPPPKSPAPCPTPLDPKVLVEEAPPGLSPGVSVRSLEKRFPGSPQPALRGLSLDFYQGHITAF LGHNGAGK
TTTSLISGLFPPSGGSFILGHVRSMAAIRPHLGVCQYNVLFDMTLTVDEHVWFYGRLLKGLSAAVVGPEQDRLL
QDVGLVSKQSVQTRHLSGGMQRKLSVAIAFVGGSQVVILDEPTAGVDPASRRGIWELLKYREGRTLILSTHHLDEA
ELLGDRVAVVAGGRLCCCGSPLFLRRHLGSGYYLTLVKARLPLTTNEKADTDMEGSVDTROEKNGSQSGSRVGT
LALVQHWVPGARLVEELPHELVLVLPYTGAHDGSAFATLRELDRALRLTGYSIDTSLEEIFLKVVEECAADTD
MEDGSCGQHLCTGIAGLDVTLRLKMPPQETALENGEPAGSAPETDQSGSPDAVGRVQGWALTRQQLQALLKRFLLA
RRSRRGLFAQIVLPALFVGLALVFSILVPPFGHYPALRLSPTMYGAQVSFFSEDAPGDPGRARLLEALLQEAGLEEP
PVQHSSHRFSAPEVPAEVAKVLASGNWTPESPSPACQCSRPGARRLLPDCPAAAGGPPPPQAVTGSGEVVQNL
TGRNLSDFLVKTYPRVLVRQGLKTKKWNVNEVRYGGFSLGGRDPGLPSGQELGRSVEELWALLSPLPGGALDRVLK
NLTAWAHSLDAQDSLKIWFNNKGWHSMAFVNRA SNAILRAHLPPGPARHAHSITTLNHPLNLTKEQLSEGA
LMASSVDVLVSI CVVFAMSFVPASFTLVLEIEERVTRAKHLQLMGGLSPTLYWLGNFWDMCNYLVPACIVVLI
FLAFQQRAYVAPANLP ALLLLLLLYGWSITPLMYPASFFFSVPSTAYVVLTCINLFIGINGSMATFVLELFSDQ
QKLQEVSRILKQVFLIFPH FCLGRGLIDMVRNQAMADAFERLGDRQFQSPLRWEVVGNLLAMVIQGPLFLFTLL
LQHRSQLLPQPRVRSPLLG

EEDEDVARERERVVQGATQGDVVLRLNLTQVYRGQRMPEAVDRCLGIPPGECFGLLGVNGAGKTSTFRMVTGDTLAS
RGEAVLAGHSVAREPSAAHLSMGYCPQSDAIFELLTGREHLELLARLRGVPEAQVAQTAGSGLARLGLSWYADRPAG
TYSGGNKRKLATALALVGDPAVVFLEPTTGMDPSARRFLWNSLLAVVREGRSVMLTSHSMEECEALCSRLAIMVNG
RFRCLGSPQHLKGRFAAGHTLTLRVPAARSQPAAAFVAAEFPGAELREAHGGRLRFQLPPGGRCALARVFGELAVHG
AEHGVEDFSVSQTMLEEVFLYFSKDQKDEDTEEQKEAGVGVDPAAGLQHPKRVSQFLDDPSTAETVL

SEQ ID NO. 45

MRLKNLTFIIILIIISGELYAEKPCGFPVHENGRIAQYYYTFKSFYFPMSSIDKKLSFFCLAGYTTESGRQEEQTTCT
TEGWSPEPRCFKKCTKPDLSNGYISDVKLLYKIQENMHYGCASGYKTTGGKDEEVVQCLSDGWSSQPTCRKEHETCL
APELYNGNYSTTQKTFKVKDKVQYECATGYTAGGKKTEVECLTYGWSLTPKCTKLKCSSLRLENGYFHPVKQTY
EEGDVVQFFCHENYYLSGSDLIQCYNFGWYPESPVCERRNRCPPLPINSKIQTHSTTYRHGEIVHIECELNFEI
HGSABIRCEDGKSTEPKCIQEQKQVACEEPPFIENGAANLHSKIYYNGDKVTYACKSGYLLHGSNEITCNRGKWT
PPECVENNENCKHPPVVMNGAVADGILASATGSSVEYRCNEYLLRGSKISRCEQGWSSPPVCLPECTVNVDMN
RNNIEMKWKYEGKVLHGDLDIDFVCKQGYDLSPLTPLSELVQCNRGEVKYPLCTRKESKGMCTSPPLIKHGVIISS
VDTYENGSSVEYRCFDHFFLEGSREAYCLDGMWTTPLCLEPCTLSFTEMEKNLLLLKWDNDNRPHILHGEYIEFIC
RGDTYPAELYITGSILRMQCDRGQLKYPRCIPRQ

SEQ ID NO. 46

MGAAAGRSPHLGPAPARRPQRSLLLLLQLLLLVAAPGSTQAQAAPFPELCSYTWEAVDTKNNVLYKINICGSVDIVQC
GPSSAVCMHDLKTRTYHSVGDVLRSATRSLLEFNTTVSCDQQTNRHVQSSIAFLCGKTLGTPEFVTATECVHYFE
WRTTAACKKIDIFKANKEVPCYVFDEELRKHDLNPLIKLSGAYLVDDSDPDTSFLINVCRDIDTLRDPGSQLRACPPG
TAACLVRGHQAFDVGQPRDGLKLVKRDRLVLSYVREEAGKLDFCDGHSPAVTITFVCPSEERREGTIPKLTAKSNCRY
EIEWITEYACHRDYLESKTCSLSGEQQDVSIDLTPLAQSGGSSYISDGKEYLFYLVNVCGETEIQFCNKKQAAVCQVK
KSDTSQVKAAGRYHNQTLRYSDGDLTLIYFGGDECSSGFQRMSSVINFEKNKTAGNDGKGTPTVFTGEVDCTYFFTWD
EYACVKEKEDLLCGATDGKKRYDLSALVRHAEPEQNWEAVDGSQTETETKKHFFINICHRVLQEGKARGCPEDA
VCKNGSKNLGKFISSPMKEKGNILSYSDGDDCGHGKKIKTNITLVCKPGDLESAPVLRSTGEGGCFYEFWHTAAA
CVLSKTEGENCTVFDSDQAGFSFDLSPLTKNGAYKVETKKYDFYINVCGPVSVSPCQPDGACQVAKRQVASHDEKT
WNLGLSNAKLSYYDGMILQNYRGGTPYNNERHTPRATLITFLCDRDAGVGFPEYQEEEDNSTYINFRWYTSYACPEEPL
ECVVYTDPTLEQYDLSLAKSEGGGLGNNWYAMDNSGEHVTVWRKYIINVCRLNPVPGCNPNYASACWYKEDQGSFT
EVVVISNLGMAKTGPVVEDSGSLLLEYVNGSACTTSDGRQTTYTRIHLVCSRGRNLNSHPIFSLNWECVVSFLWNT
AACPIQTTTDTQACSIRDPNSGFVFNLNPLNSSQGYNVSGIGKIFMNVCGTMPVCGTILGKPSAGCEAETQTEEL
KNWKPARPVGIEKSLQLSTEGFITLTYKGPLSAKTADAFIVRFVNCDDVYSGPLKFLHQDIDSGQGIINTYFET
ALACVPSPVDCQVTDLAGNEYDLTGLSTVRKPWTAVDTSVDGRKRTFYLSVCNPLPYIPGCQGDVAVGSLVSEGN
NLGVVQMSPQAAANGSLSIMYVNGDKCGNQRFSTRITFECAQISGSPAFQLQDGEYVFIWRTVEACPVVRVEGDNC
EVKDPRHGNLYDLKPLGLNDTIVSAGEYTYFRVCGKLSDDVCPTSDKSKVSSCQEKREPQGFHKVAGLLTQKLTY
ENGLLKMNFTGGDTCHKVYQRSTAFFYCDRGTRQRPVFLKETSDCSYLFEWRTQYACPPFDLTECSFKDGAGNSFDL
SSLSRYSDNWEAITGTGDPEHYLINVCKSLAPQAGTEPCPEAAACLGGSKPVNLGRVRDGPQWRDGIIVLKYVDG
DLCPDGIRKKSTTIRFTCSSESQVNSRPMFISAVEDCEYTFAWPTATACPMKSNEHDDCQVTNPSTGHLFDLSSLSGR
AGFTAAYSEKGLVYMSICGENENCPPGVGACFGQTRISVGKANKRLRYVDQVLQVLYKDGSPCPSKSGLSYKSVISF
VCRPEARPTNRPMLISLDKQCTCTFFSWHTPLACEQATECSVRNGSSIVDLSPLIHRTGGYEAYDESEDDASDTNPD
FYINICQPLNPMHGVPCPAGAAVCKVPIDGPPIDIGRVAGPPIINPIANEIYLNFSSTPCLADKHFNYTSLIAFHC
KRGVSMGTPKLLRTSECDVFVFEWETPVVCPDEVMDGCTLTDEQLLYSFLNSSLSTSTFKVTRDSRTYSVGVCFAV
GPEQGGCKDGGVCLLSGTGKASFGRLQSMKLDYRHQDEAVVLSYVNGDRCPPETDDGVPCVFPFIFNGKSYEECIE
SRAKLWCSTTADYDRDHEWGFCHRHSNSYRTSSIIFKCDEDEDIGRPQVFSEVRGCDVTFEWKTKVVCPPKKLECKFV
QKHKTDLRLSSLTGSWSLVHNGVSYINLCQKIYKGPLGCSERASICRRTTTGDVQVLGLVHTQKLGVIGDKVVV
TYSKGYPCGGNKTASSVIELTCTKTVGRPAFKRFDIDSCTYYFSWDSRAACAVKPQEVQMVNGTITNPINGKSFSLG
DIYFKLFRASGDMRTNGDNYLYEIQLSITSSRNPAACSGANICQVKPNDQHFSRKVGTSDKTKYYLQDGDLDVVFAS
SSKCGKDKTKSVSSTIFFHCDPLVEDGIPEFSHETADCQYLFWSYTSAVCPLGVGFDSNPDDGQMHKGLSERSQA
VGAVLSLLLVALTCCLLALLLYKKERRETVISKLTTCCRRSSNVSYKYSKVNKEEETDENETEWLMEEIQLPPPRQG
KEGQENGHITTKSVKALSSSLHGDDQDSEDEVLTIPEVKVHSGRGAGAESSHPVRNAQSNALQEREDDRVGLVRGEKA
RKGKSSSAQKQTVSSTKLVSFHDDSDDELLHI

SEQ ID NO. 47

LGFSLPPHLLFRPRDLQFLQRFQILKVLFPSSWSSQNALMFLTLCLTLLGDFDQFTCNLLYVSWRKDLTEHLHRL
YFRGRAYYTLNVLRDDIDNPDQRIQSDVERFCRQLSSMASKLIISPFTLVYYTYQCFQSTGWLGPVSIFGYFILGT
VNKTLMGPIVMKLVHQEKLEGDFRKFHMQIRVNAEPAAFYRAGHVEHMRDRLRLQRLLOTQRELMSKELWLYIGINT
FDYLGSIYSYVIAIPIFSGVYGDLSPAELSTLVSKNAFVCIYILISCFQTQLIDLSTLSDVAGYTHRIGQLRETLLD

MSLKSQDCEILGESEWGLDTPPGWPAAPADTAFLLERVSISAPSSDKPLIKDLSLKISEGQSLLITGNTGTGKTS
 LRVLGGLWTSTRGSVQMLTDFGPHGVFLFPQKPFFTDGTREQVIYPLKEVYPDSGSADDERILRFLELAGLSNLVA
 RTEGLDQQVDWNWYDVLSPGEMQRLSFARLFYLQPKYAVLDEATSALTEEVESELYRIGQQQLGMTFISVGHRSLEK
 FHSVLVLCGGGRWELMRIKVE

SEQ ID NO. 48

MAATLILEPAGRCCWDEPVRIAVRGLAPEQPVTLRASLRDEKGFQAHARYRADTLGELDLERAPALGGSFAGLEP
 MGLLWALEPEKPLVRLVKRDVRTPLAVELEVLDGHDPPGRLLCRVRHERYFLPPGVRREPVRAGRVRGTLFLPPEP
 GPFPGIIVDMFGTGGGLLEYRASLLAGKGFVMAALAYNYEDLPKTMETLHLEYFEEAVNYLLSHPEVKGPVGLLGI
 SKGGELCLSMASFLKGITAAVINGSVANVGGLTRYKGETLPPVGVRNRRIKVTKDGYADIVDLNSPLEGPDQKSF
 IPVERAESTFLFLVGQDDHNWKSEFYANEACKRLQAHGRRKPQICYPETGHYIEPPYFPLCRASLHALVGSPIIWG
 GEPRAHAMAQVDAWKQLQTFHKLHGGHEGTIPSKV

SEQ ID NO. 49

MPKAPKQPPPEPEWIGDGESTSPSGEAGRQGRNEQRGKREETARFFEEELAVEDKQAGEEEKVLKEKEQQQQQQQQQ
 QKKKRDTRKGRKKDVEDDGEELMERLKKLSVPTSDEEDVPAPKPRGGKTKGKNVFAALIQQDQSEEEEEEEKH
 PPKPAKPEKNRINKAVSEEQQPALKGKKGKEEKSXKAKVRXXXFFLPSQMEYERQVASLKAANAENDFSVSQAEM
 SSRQAMLENASDIKLEKFSISAHGKELFVNADLYIVAGRRYGLVGPNGKGTTLKKHIANRALSIPPNIIDVLLCEQE
 VVADETPAVQAVLRADTKRLKLEEEERRLQGGLEQGGDTAAERLEKVYEELRATGAAAAEAKARRILAGLGFDP
 NRPTQKFSGGWRMRVSLARALFMEPTLLMLDEPTNHLDLNAVIWLNLYLQGWRTLLIVSHDQGFLLDDVCTDI
 AQLHYYRGNMYTFKKMYQQKQKELLKQYEQEKKLKELKAGGKSTKQAEKQTKREALTRKQQKCRRNQDEESQ
 EAP ELLKRPKEYTVRFTFPDPPPLSPPVLGLHGVTFGYQGQKPLFKNLDFGIDMSRICIVGPNVGVKSTLLLLT
 TGKLT PTHGEMRKNHRLKIGFFNQYAEQLRMEETPTEYLQRFNLQYQDARKCLGRFGLESHAHTIQICKLSGGQ
 KARVVF AELACREPDVLIIDEPNTNLDIESIDALGEAINEYKGAIVVSHDARLITETNCQLWVVEEQSVS
 QIDGDFEDYKRE VLEALGEVMVSRPRE

SEQ ID NO. 50

KMLSSFLSPQNGTWADTFSLLLALAVALYLYGYWACVLQRPRVLVAGPQFLAFLEPHCSITTETFYPTLWCFEGR
 LQS IFQVLLQSQPLVLYQSDILQTPDGGQLLLDWAKQPDSSQDPDPTTQPIVLLLPGITGSSQDITYVLHLV
 NQALRDGYQ AVVFNNRGRGGEELRTHRAFCASNTEDLETVMNHIKHRYPQAPLLAVGISFGGILVLNHLA
 QARQAAGLVAALTLA CWDSEFETTRSLTPLNSLLFNQPLTAGLCQLVERNKRKVEKVVVIDFVLQARTIRQ
 FDERYTSVAFGYQDCVTTYKA ASPRTKIDAIRIPVLYLSAADDPFSPVCALPIQAAQHSPYVALLITARGGH
 IGFLGLELLPWQHWYMSRLLHQAIAI FQDPEGLPDLRALLPSEDRN

SEQ ID NO. 52

LFTVTVPKELYIEHGSNVTLECNFDTGSHVNLGAITASLQKVENDTSPHRERATLLEEQLPLGKASFHIPQVQ
 VRD EGQYQCIIYGVANDYKYLTLKVKASYRKINTHILKVPETDEVELTCQATGYPLAEVSWPNVSV
 PANTSHSRTPEGL YQVTSVLRKLPKPPGRNFSCVFNTHVRELTLASIDLQSQMEPRTHPTWLLHIFIPFC
 IIAFIFIATVIALRKQLCQK LYSSKDVSIIHCAKVTLLVPIPTQTTVLQDYSSYGSPTHALSLVPKQDPYGLMR

SEQ ID NO. 53

MARGYGATVSLVLLGLGLALAVIVLAVVLSRHQAPCGPQAFAHAAVAADSKVCSDIGRAILQQQGS
 PVDATIAALVC TSVVNPQSMGLGGGVIFTIYNVTGAQWIGVPGELRGYAEAHRRHGRLPWAQLFQPT
 IALLRGHVVPVLSRFLHN SILRPSLQASTLRQLFFNGTEPLRPQDPLPWPALATTLETVATEGVEV
 FYTGRLGQMLVEDIAKEGSQLTLQDLAKF QPEVVDALVPLGDYTLSPPPPPAGGAILSFILNVL
 RGFNFSTESMARPEGRVNVYHHLVETLKFAGQRWRLGDPR SHPKLQNASRDLLGETLAQLIRQQID
 GRGDHQLSHYSLAEAWGHGTGTSHVSVLGEDGSAVAATSTINTPFGAMVYS PRTGIILNELL
 DLCERCPRGSGTTPSPVETGWVELPEGAGPQFQASVPHPPWCPPS

SEQ ID NO. 54

MAVTLDKDAYYRRVKRLYSNWRKGEDEYANVDAIVVSVGVDEEIVYAKSTALQTWLFGYELTDTIMVFCDDK
 IIFMA SKKKVEFLKQIANTKGNENANGAPAITLLIREKNESNKSSFDMIEAIEKSKNGKKIGVFSKDK
 FPGEFMKSWNDCL NKEGFDKIDISAVVAYTIAVKEDGELNLMKKAASITSEVFNKFFKERVMEIVDA
 DEKVRHSLAESVEKAIEKKYL AGADPSTVEMCYPPIIQSGGNYNLKFVSVSDKNMHFGAITCAMGIR
 FKSYSNLRVTLMDVPSQEVQENYNFLQL QEELLKELRHGVKICDVYNAVMDVVKQKPELLNKITKNL
 GFGMGIEFREGSLVINSKNQYKLKKGMVFSINLGFSD LTNKEGKKPEEKTYALFIGDVLVDE
 DGPATVLTSVKKVKVNGVIFLKNEDEEEEEEKDEAEDLLGRGSRAALLTE RTRNEMTAEEKRR
 AHQKELAAQLNEEAKRRLTEQKGEQQIQKARKSNVSYKNPSLMPKEPHIREMKIYIDKKYETVI
 MPVFGIATPFHIATIKNISMSVEGDYTYLRINFYCPGSALGRNEGNIFPNPEATFVKEITYRASNIKAPGEQ
 TVPAL

NLQNAFRIIKEVQKRYKTREAEKEKEGIVKQDSLVINLNRSNPKLKDLYIRPNIAQKRMQGSLEAHVNGFRFTSVR
GDKVDILYNNIKHALFQPCDGEIIVLHFHLKNAIMFGKKRHTDVQFYTEVGEITTDLGKHQHMHDRDDLYAEQMER
EMRHKLKTAFAKNFIEKVEALTKEELEFEVPPFRDLGFNGAPYRSTCLLQPTSSALVNATEWPPFVVTLDLEVELIHFER
VQFHLKNFDMVIVYKDYSKKVTMINAIPVASLDPIKEWLNSCDLKYTEGVQSLNWTIMKTIVDDPEGFFEQGGWSF
LEPEGEESDAEEGDSESEIEDETNPSEDDYEEEEEDSDYSEAEESDYSKESLGSEESGKDWDELEEEARKAD
RESRYEEEEQSRSMRKRKASVHSSGRGSRNRGSRHSSAPPKKKRK

SEQ ID NO. 55

SPILCGAATALNCSLCPQDSNLSVHTENPDLTPCFQNSLLAWVPCIYLWVALPCYLLYLRRHCRGYIILSHLSKLM
VLGVLLWCVSWADLFYSFHLVHGRAPAPVFFVTPLVVGVTMLLATLLIQYERLQGVQSSGVLIIFWFLCVVCAIVP
FRSKILLAKAEGEISDPFRFTTFYIHFALVLSALILACFREKPPFFSAKNVDPNYPETSAGFLSRLFFWWFTKMAI
YGYRHPLEEKDLWSLKEEDRSQMVVQQLLEAWRKQEKQTARHKASAAPGKNASGEDEVLLGARPRPRKPSFLKALLA
TFGSSFLISACFKLIQDLSFINPQLLSILIRFISNPMAPSWWGFLVAGLMFLCSMMQSLILQHYYHYIFVTGVKFR
TGIMGVIRKALVITNSVKRASTVGEIVNLMVDAQRFMDLAPFLNLLWSAPLQIILAIYFLWQNLGPSVLAVAFM
VLLIPLNGAVAVKMAFQVQKMKLKDSTRIKLMSEILNGIKVLKLYAWEPSFLKQVEGIRQGEQLLRTAAYLHTTTT
FTWMCSPFLVTLITLWVYVYVDPNNVLDAAEKAFVSLSFNILRLPLNMLPQLISNLTQASVSLKRIQQFLSQEELDP
QSVERTISPGYAITIHSGTFTWAQDLPTLHSLDIQVPKGALVAVVGPVCGKSSSLVSALLGEMEKLEGKVHMKGS
VAYVPQQAUIQNCTLQENLVFGKALNPQRYQQTLEACALLADLEMLPGGDQTEIGEKGINLSGGQRQRVSLARAVYS
DADIFLLDDPLSAVDSDHAKHIFDHVIGPEGVLAKTRVLVTHGISFLPQTDFIIVLADGQVSEMGYPALLQRNGS
FANFLCNYPADEDQGHLEDSWTALEGAEDKEALLIEDTLSNHTDLTDNDPVTYVYVQKQFMRQLSALSSDGEGQGRPV
PRRHLGPSEKQVTEAKADGALTQEEKAAIGTVELSVFWDYAKAVGLCTTLAICLLYVGQSAAGANVWLSAWTND
AMADSRQNNTSRLGVYAALGILQGFVLMMAAMAMAAGGIQAARVLHQALLHNKIRSPQSFFDTPSGRILNCFSKD
IYVDEVVLAPVILMLLSFFNAISTLVVIMASTPLFTVVILPLAVLYTLVQRFYAATSRQLKRLESVSRSPIYSHFS
ETVTGASVIRAYNRSDFEIISDTKVDANQRSCYPYIISNRWLSIGVEFVGNVVLFAALFAVIGRSSLNPLGLVGLS
VSYSLQVTFALNWMIRMMSDLESNIVAVERVKEYSKTETEAPWVVEGSRPPEGWPPRGEVEFRNYSVRYRPGDLVL
RDLSLHVHGGEKVGIVGRTGAGKSSMTLCLFRILEAAKGEIRIDGLNVADIGLHDLRSQLTIIIPQDPIILFSGTLRMN
LDPFGSYSEEDIWWALELSHLHTFVSSQPAQLDFQCSEGGENLSVGQRQLVCLARALLRKSRIVLDEATAAIDLET
DNLIQATIRTQFDTCTVLTIAHRLNTIMDYTRVLVLDKGVVAEFDS PANLIAARGIFYGMARDAGLA

SEQ ID NO. 56

PYCSLPRAPLHGFILGQTSTQPGGSIHFGCNAGYRLVGHSMACITRHPQGYHLWSEAIPLCQALSCGLPEAPKNGMV
FGKEYTVGTKAMYSCEGYHLQAGAEATAECLDTGLWSNRNVPPQCVPTCPDVSSISVEHGRWRILIFETQYQFQAQ
LMLICDPGYYTGTQVRIRCQANGKWSLGDSTPTCRILAKQKQPCPSSWGWLTEHLVIIILVISGELPIPPNGHRIGT
LSVYGATAIFSCNSGYTLVGSRVRECMANGLWSGSEVRCLATQTKLHSIFYKLLFDVLSSPSLTKAGHCGTPEPIVN
GHINGENYSYRGSVVYQCNAFRLIGMSVRIQQDHHWSGKTPFCVPITCGHPGNPVNGLTQGNQFNLDVVKFCN
PGYMAEGAARSQCLASGQWSDMLPTCRIINCTDPGHQENSVRQVHASGPHRFSFGTTVSYRCNHGFYLLGTPVLSCQ
GDGTWDRPRPQCLLVSCGHPGSPPHSQMSGDSYTVGAVVRYSCIGKRTLGVNSTRMCGLDGHWGSLPHCS

SEQ ID NO. 57

PLAFCGSENHSAAYRVDQGVLNNGCFVDALNVVPHVFLLFITFPILFIGWGSQSSKVHIHSTWLHFPGHNLRWILT
FMLLFVLVCEIAEGILSDGVTESHHLHLYMPAGMAFMAAVTSVYYHNIETSNFPKLLIALLVYWTAFITKTIKFV
KFLDHAIGFSQRLRFLCTGLLVILYGMILLVEVNVIRVRYIIFKTPREVKKPEDLQDLGVRFLLQPFVNLSSKGTYYW
MNAFIKTAHKKPIDLRAIGKLP IAMRALTNQRLCEAFDAQVRKDIQGTQGARAIWQALSHAFGRRLVLSSTFRILA
DLLGFAGPLCIFGIVDHLGKENDVFQPKTQFLGVYFVSSQEFLANAYVLAVLLFLALLLQRTFLQASYVVAIETGIN
LRGAIQTKIYNKIMHLSTSNLSMGEMTAGQICNLVAIDTNQLMWFFFLCPNLWAMPVQIIVGVILLYYILGVSAIG
AAVILLAPVQYFVATKLSQAQRSTLEYSNERLKQTNEMLRGIKLLKLYAWENIFRTRVETTRRKEMTSLRAFAIYT
SISIFMNTAIPAAVLITFVGHVSFFKEADFSPSVAFASLSLPHILVTPFLFLSSVVRSTVKALVSVQKLSEFLSSA
EIREEQCAPHEPTPQGPASKYQAVPLRVVNRKRPAREDCRGLTGPLQSLVPSADGDADNCCVQIMGGYFTWTPDGIP
TLSNITIRIPRGQLTMIVGQVCGKSSLLAALGEMQKVSGAVFWSSMPFLPCCSPERETATDLDIRKRGPVAYASQ
KPWLLNATVEENIIFESPFNKQRYKMVIEACSLQPDIDILPHGDQTQIGERGINLSGGQRQRISSVARALYQHANNVF
LDDPFSALDIHLSDHLMQAGILELLRDDKRTVVLVTHKLQYLPHADWIIAMKDGTIQREGTLKDFQRSECQLFEHWK
TLMNRQDQELEKETVTERKATEPPQGLSRAMSSRDGLLQDEEEEEEEAAESEEDNLSSMLHQRAEIPWRACAKYLS
SAGILLSSLLVFSQLLKHMVLVAIDYWLAKWTDALTLTPAARNCSLSQECTLDQTVYAMVFTVLCSLGIVLCLVTS
VTVEWTGLKVAKRLHRSLLNRIILAPMRFFETTPGSLNRFSSDCNTIDQHIPSTLECLSRSTLLCVSALAVISYV
TPVFLVALLPLAIVCYFIQYFRVASRDLQQLDDTTQLPLLSHFAETVEGLTTIRAFRYEARFQOKLLEYTDSNNIA
SLFLTAANRWLEVRMATPLPPQEYIGACVVIIAAVTSISNSLHRELSAGLVGLGLTYALMVSNYLNMVNRNLADMEL
QLGAVKRIHGLLKTEAESYEGLLAPSLIPKNWPDQGGKIQIQNLSVRYDSSLKPVLKHNALIAAPGQKIGICGRTGSG

KSSFSLAFFRMVDTFEGHIIIDGIDIAKLPLHLTLRSLSIILQDPVLFSGTIRFNLDPERKCSDSLWEALEIAQLK
LVVKALPGGLDAITEGGENFSQGGQRLFCALARAFVRKTSIFIMDEATASIDMATENILQKVVMATAFADRTVVTIAH
RVHTILSADLVIVLKRGAILEFDPKPEKLLSRKDSVFASFVRADK

SEQ ID NO. 58

MPRNLLYSLLSSHLSPHFSTSVTSKAVAVNGVQLHYQQTGEGDHAVLLLPGMLGSGETDFGPQLKNLNKKLFTTVAV
DPRGYGHSRPPDRDFPADFFERDAKDAVDLMKALKFKKVSLLGWSGGITALIAAAKYPYIHKMVIWGANAYVTDE
DSMIYEGIRDVSKWSETRKPLEALYGYDYFARTCEKWDGIRQFKHLPDGNICRHLLPRVQCPALIVHGEKDPLVP
RFHADFIHKHVKGSRLHLMPEGKHNHLRFADEFNKLAEDFLQ

SEQ ID NO. 59

MMREWVLLMSVLLCGLAGPHTLFPQPSLVLDMAKVLLDNYCFPENLLGMQEAIQQAISHEILSISDPQTLASVLTAG
VQSSLNDPRLVISYEPSTPEPPPQVPALTSLSSEEELLAWLQRLRHEVLEGNVGYLRVDSVPGQEVLSMMGEFLVAH
VWGNLMGTSALVLDLRHCTGGQVSGIPYIISYLHPGNTILHVDTIYNRPSNTTTEIWTLPQVLGERYGADKDVVLT
SSQTRGVAEDIAHILKQMRRAIVVGERTGGGALDLRLRIGESDFFFTVPVSRSLGPLGGGSQTWEGSGVLPCVGT
AEQALEKALAILTLRSALPGVVHCLQEVLDYTYTLVDRVPTLLQHLASMDFFSTVVSEEDLVTKLNAGLQAASEDPRL
LVRAIGPTETPSWPAPDAAAEDSPGVAPELPEDEAIRQALVDSVFQVSVLPNGVGYLRFDSDADASVLGVLAPYVLR
QVWEPLQDTEHLIMDLRHNPGGPSSAVPLLLSYFQGPVHLFTTYDRRTNITQEHFSHMLPGPRYSTQRGVYL
LTSHRTATAAEFAFLMQSLGWATLVGEITAGNLLHTRTVPLLDTPEGSLALTPVLTTFIDNHGEAWLGGGVVDAI
VLAEEALDKAQEVLEFHQSLGALVEGTGHLLEAHYARPEVVQTSALLRAKLAQGAYRTAVDLESASQLTADLQEV
SGDHRLLVFHSPGELVVEEAPPPPAVPSPEELTYLIEALFKTEVLPGQLGYLRFDAMAELETVKAVGPQLVRLVWQ
QLVDTAALVIDLRYPGSSYSTAIPLLCSYFFAEPRQHLYSVFDRATSKVTEVWTLTPQVAGRYGSHKDLYLILMSHT
SGSAAEAFAHTMQDLQRATVIGEPTAGGALS SVGIYQVGSPLYASMPTQMAMSATTGKAWDLAGVEPDITVPMSEAL
SIAQDIVALRAKVPTVLQTAGKLVADNYASAEALGAKMATKLSGLQSRYSRVTSVALAEILGADLQMLSGDPHLKAA
HIPENAKDRIPGIVPMQIPSPVFEELIKFSFHTNVLEDNIGYLRFDMGDGEELLTQVSRLLVEHIWKKIMHTDAMI
IDMRFNIGGPTSSIPILCSYFFDEGPPVLLDKIYSRPDDSVSELWTHAQVVGERYGSKKSMVILTSSVTTAGTAEFT
YIMKRLGRALVIGEVTSGGCQPPQTYHVDNLTNLYLTIPTARSVGASDGSSWEGVGVTPHVVVPAAEALARAKEMLQH
NQLRVKRSPLQDHL

SEQ ID NO. 60

MAEVNIIYVTVFILKGITNRPELQAPCFGVFLVIYLVTVLGNLGLITLIKIDTRLHTPMYYFLSHLAFVDLCYSSAI
TPKMMVNFVVERNTIPFHACATQLGCFLTFMITECFLLASMAIDCYVAICSPHYSTLMSRRVCIQLVAVPYIYSFL
VALFHTVITFRLTTCGPNLINHFYCDLPLFALSCSDTHMKEILIFAFAGFDMISSSSIVLTSYIFIIAAILRIRST
QGQKHAISTCGSHMVTVTIFYGTLIFMYLQPKSNHSLDTDKMASVFYTVVIPMLNPLIYSLRNKEVKDA

SEQ ID NO. 61

MIQLTATPVSAVDEPVHIRATGLIPFQMVSFQASLEDENGDMFYSAHYRANEFGEVDLNHASSLGGDYMGVHPMG
LFWSLKPEKLLTRLLKRDVMNRPFQVQVKLYDLELIVNNKVASAPKASLTLEWYVAPGVTRIKVREGRLRGALFLP
PGEGLFPGVIDLFGGLGGLLEFRASLLASRGFASLALAYHNYEDLPRKPEVTDLEYFEEAANFLLRHPKVFGSGVGV
VSVCCQGVQIGLSMAIYKQVTATVLINGTNFPFGIPQVYHGQIHQPLPHSAQLISTNALGELLELYRTFETTQVGASQ
YLFPIEEAQGFLLFVGEQDKTINSKAHAEQAIGQLKRHGKNNWTLTSLYPGAGHLIEPPYSPLCCASTTHDLRLHWG
GEVIPHAAAQEHAWKEIQRFLRKHLIPDVTSQL

SEQ ID NO. 62

ISPQSRDAKPNPEEPIDEDEDIQTERIRTATALTTSILDEVELKGCSSVLGHLGYCPQENVLWPMLTLEHLEVYAA
VKGLRKADARLAIARLVSAFKLHEQLNVPVQKLTAGITRKLCFVLSLLGNSPVLLLDPESTGIDPTGQQQMWQAIQA
VVKNTERGVLTTHTNLAEAEALCDRVAIMVSGRLRCIGSIQHLKNKLKGDYILELKVKETSQVTLVHTEILKLPQA
AGQERYSSLLTYKLPVADVPLSQTFHKLEA

SEQ ID NO. 63

WNTSNPDFTKCFQNTVLVWVPCFYLWACFPFYFLYLSRHRDGYIQMTPLNKTKTALGFLWIVCWADLFYSFWERSR
GIFLAPVFLVSPTLLGITMLLATFLIQLERRKGVSQSSGIMLTFWLVALVCAILRSKIMTALKEVDLFRDITFYVY
FSLLLIQLVLSCFSDRSPLFSETIHDNPNCPRESSASFLSRITFWWITGLIVRGYRQPLEGSDLSLNKEDTSEQVVP
VLVKNWKKCAKTRNSSGSGESCSANTEALFPAPTCHKSFQALSLLLCRLLIKFNVDTKAPDWQGYFYTVLLFVTAC
LQTLVLHQYFHCIFVSGMRIKTAVIGAVYRKALVITNSARKSSTVGEIVNLMSVDAQRFMDLATYINMIWSAPLQVI
LALYLLWLWVAPDVLTAVSSKVAHMKSKDNRIKLMNEILNGIKVLKLYAWELAFKDKVLAIRQEELKVLKKSAYLSA
VGTFTWVCTPFLVALCTFAVYVTIDENNILDAQTAFAVSLALFNILRFPLNIPMVISSIVQVQGEAGATSERGPWGS

RPRKHGTRQASFSVAEPGVLCRFSITFSIPEGALVAVVGQVCGCKSSLLSALLAEMDKVEGHVAIKGSVAYVPQQA
 IQNDSLRENILFGCQLEEPYYSVIQACALLPDLEILPSGDRTEIGEKGVNLSGGQKQVRVSLARAVYSNADIYLFDD
 PLSAVDAHVGKHIFENVIGPKGMLKNKSCDISCDLQVKLSVYWDYMKAIGLFISFLSIFLFCMNHVSALASNYWLSL
 WTDDPIVNGTQEHTKVRLSVYGALGISQGIIVFGYSMAVSIIGGILASRCLHVDLLHSILRSPMSFFERTPSGNLVNR
 FSKELDTVDSMIPEVIKMFMSLFNVIGACIVILLATPIAAIIIPPLGLIYFFVQRFYVASSRQLKRLESVSRSPVY
 SHFNETLLGVSVIRAFEEQERFIHQSDLKVDENQKAYYPSIVANRWLAVRLECVGNCIVLFAALFAVISRHSLSAGL
 VGLSVSYSLQVTTYLNWLVRMSSEMETNIVAVERLKEYSETEKEAPWQIQETAPPSSWPQVGRVEFRNYCLRYREDL
 DFLVRHINVTINGGEKVGIVGRTGAGKSSLTGLFRINESAEGEI IDGINIAKIGLHDLRFKITIIPQDPVLFSGS
 LRMNLDPPFSQYSDEEVWTSLELAHLKDFVSALPDKLDHECAEGGENLSVGQRQLVCLARALLRKTILVLDEATAAV
 DLETTDLIQTSTRTQFEDCTVLTIAHRLNTIMDYTRVIVLDKGEIQEYGAPSDLLQQRGLFYMAKDAGLV

SEQ ID NO. 64

HRLIGHSSAECILSGNTAHWSTKPPICQRI PCGLPPTIANGDFISTNRENFHYGSVVTYRCNLGSRGRKVFELVGE
 SIYCTSNDDQVGIIWSGPAPQCIIPNKCTPPNVENGILVSDNRSLSLNEVVEFRCPQPGFVMKGP RRVKCQALNKWEP
 ELPSCSRVCQPPPEILHGEHTPSHQDNFSPGQEVFYSCPEGYDLRGAASLHCTPQGDWSPEAPRCAVKSCDDFLGQL
 PHGRVLFPLNLQLGAKVSFVCDGFRLLKGSSVSHCVLVGMRSLLWNNSVPVCEHIFCPNPPAILNGRHTGTSPGDI
 PYGKEISYTCDPHPDRGMTFNIGESTIRCTSDPHGNGVWSSPAPRCELSVRAGHCKTPEQFPFASPTIPINDFEFPV
 TSLNYECRPGYFGKMFISCLLENLVSSVEDNCRKSCGPPPEPFNGMVHINTDTQFGSTVNYSCNEGFRLIGSPST
 TCLVSGNNVTWDDKAPICEIISCEPPPTISNGDFYSNNRTSFHNGTVVITYQCHTGPDGEQLFELVGERSIYCTSKDD
 QVGWSSPPPRCISTNKCTAPEVENAIRVPGNRSFFTLTEIIRFRCPQPGFVMVGSHTVQCQTNGRWGPKLPHCSRVC
 QPPHILHGEHTLSHQDNFSPGQEVFYSCPEGYDLRGAASLHCTPQGDWSPEAPRCTVKSCDDFLGQLPHGRVLLPLN
 LQLGAKVSFVCDGFRLLKGRSASHCVLAGMKALWNSSVPVCEH

SEQ ID NO. 65

MRGPPAWPLRLLEPPSPAEPGRLLPVACVWAAAASRVPGSLSPFTGLRPARLWGAGPALLWGVAARRWRSRSGRGGGP
 GASRGVLGLARLLGLWARGPGSCRCGAFAGPGAPRLPRARFPGGPAAAAAGWDEAWRRGPAAPPDGRRLRPAAGL
 PEARKLLGLAYPERRRLAAAVGFLTMSVVISMSAPFFLGKI IDVIYTNPTVDYSDNLRCLGLSAVFLCGAAANAI
 RVYLMQTSQQRIVNRLRSLFSSILRQEVAFDCKTRTGELINRLSSDTALLGRSVTENLSDGLRAGAASVGISMMF
 FVSPNLATFVLSVVPVSI IAVIYGRYLRLTKVTQDSLAAQTQLAEERIGNVRTVRAFGKEMTEIEKYASKVDHVM
 QLARKEAFARAGFFGATGLSGNLI VLSVLYKGGLLMGSAHMTVGLSSFLMYAFWVGISIGGLSSFYSELMKGLGAG
 GRLWELLEREPKLPFNEGVILNEKSFQGALEFKNVHFAYPARPEVPIFQDFSLSPSGSVTALVGPSSGSKSTVLSL
 LLRLYDPASGTISLDGHDIRQLNPVWLRSKIGTVSQEPILFSCSIAENIAYGADDPSSVTAEEIQRVAEVANAVAFI
 RNFPQGFNTVVGEKGVLLSGGQKQRIAIARALLKNPKILLDEATSALDAENEYLVQEALDRLMDGRTVLVIAHRLS
 TIKNANMVAVLDDQGKITEYKGHEELLKSKPNGIYRKL MNKQSFISA

SEQ ID NO. 66

GILTWYIEAVHPGMYGLPRPWYFPLQKSYWLGSGRTEAWESWPWARTPRLSVMEEDQACAMESRRFEETRGMEEEP
 THLPLVVCVDKLTKVYKDDKKLALNKL SLNLYENQVVSFLGHNGAGKTTHHNVLFDRLTVEEHLWFYSRLKSMAQEE
 IRREMDKMIEDLELSNKRHSLVQTLSSGGMKRKLSVAIAFVGGSRAIILDEPTAGVDPYARRAIWDLILKYKPGRTIL
 LSTHHMDEADLLGDRIAIISHGKLKCCGSPLFLKGTG DYRLTLVKRPAEPGGPQEPGLASSPPGRAPLSSCSELQ
 VSQFIRKHVASCLLVSDTSTELSYILPSEAAKKGAERLFQHLERSLDALHLSSFGMLMDTTLEEVLKVSEEDQSLE
 NSEADVKE SRKDVLPGAEGPASGEGHAGNLRCELTSQSASLQSASSVGSARGDEGAGYTDVYGDYRPLFDNPQDP
 DNVSLQEVAEALSRVGQSRKLDGGWLKVRQFHGLLVKRFHCARRNSKALFSQILLPAFFVCVAMTVALSVPEIGD
 LPPLVLSPSQYHNYTQPRGNFI PYANEERREYRRHPAGASLVGGASEGAGTALVGQAGEGAGLARGGDWQPHLTLIW
 GRGGEDLGPESAAPPCAGITVTNHPMNKTSASLSLDYLLQGTDVVIAIFIIVAMSFVPASFVFLVAEKSTKAKH
 LQFVSGCNPIIYWLANYVWDMNLNLYLPATCCVILFVFDLPAYTSPTNFPVAVLSLFLLYGWSITPIMYPASFVFEVP
 SSAYVFLIVINLFIGITATVATFLLQLFEHDKDLKVNSYLKSCFLIFPNYNLGHGLMEMAYNEYINEYYAKIGQFD
 KMKSPFEWDIVTRGLVMAVEGVVGFLLTIMCQYNFLRRPQRMVSTKPVEDDVVASERQVRVLRGDSNDMCFGLL
 GVNGAGKTSTFKMLTGDESTTGGEAFVNGHSVLKELLQVQSLGYCPQCDALFDELTAREHLQLYTRLRGISWKDEA
 RVVKWALEKLELTKYADKPAGTYSGGNKRKLSTAIALIGYPAFI FLDEPTTGMDPKARRFLWNILDLIKTGRSVVL
 TSHSMEECEALCTRLAIMVNGRLRCLGSIQHLKNRFGDGYMITVRTKSSQSVKDVVRFFNRNFP EAMLKERHHTKVQ
 YQLKSEHISLAQVFSKMEQVSGVLGIEDYSVSQTTLDNVFVNFVAKKQSDNLEQQETEPSPALQSPLGCLLSLLRPRS
 APTELRALVADEPEDLDTEDEGLISFEEERAQLSFNTDTLC

SEQ ID NO. 67

MGPGRPAPAPWPRHLLRCVLLLGCLHLGRPGAPGDAALPEPNI FLIFSHGLQGCLEAQQGQVRVTPACNTSLPAQRW
 KWVSRNRLFNLTGMQCLGTGWPGTNTTASLGMYECDREALNLRWHCRTLGDLQLSLLL GARTSNISKPGTLERGDQTR

SGQWRIYGSEEDLCALPYHEVYTIQGNSHGKPCITIPFKYDNQWFHGCTSTGREDGHLWCATTQDYGKDERWGFCEPIK
 SNDCETFWDKDLTDSCYQFNQSTLSWREAWASCEQQGADLLSITEIHEQTYINGLLTGYSSTLWIGLNDLDTSGG
 WQWSDNSPLKYLNWESDQPDNPSEENCGVIRTESSGGWQNRDCSIALPYVCKKKPNATAEPTPPDRWANVKVECEPS
 WQPFQGHYCYRLQAEKRSWQESKKACLRGGGDLVSIHSMAELEFITKQIKQEVEELWIGLNDLKLQMNFEWSDGSLVS
 FTHWHFPEPNFRDLSLEDCVTIWGPEGRWNDSPCNQSLPSICKKAGQLSQGAAEEDHGCRKGWTHWSPSCYWLGEDQ
 VTYSEARRLCTDHGSQVLVTITNRFEQAFVSSLIYNWEGEYFWTALQDLNSTGSFFWLSGDEVMYTHWNRDQPGYSRG
 GCVALATGSAMGLWEVKNCTSFARYICRQSLGTPVTPPELPGDPPTPSLTGSCPQGWASDTKLRYCYKVFSSERLQD
 KKSQVQAQACQELGAQLLSLASYYYYHFVANMLNKIFGESEPEIHEQHWFWIGLNRDRPRGGQSWRWSGVSFYSYH
 NFDRSRHDDDDIRGCAVLDLASLQWVAMQCDTQLDWICKIPRGTDVREPDDSPQGRREWLRFQEAHYKFEHHSTWA
 QAQRICTFWQAELETSVHSQAELEDFLSHNLQKFSRAQEQHWWIGLHTSESDGRFRWTDGSIINFISWAPGKPRPVGKD
 KKCVMYMTASREDWGDQRCLTALPYICKRSNVTKETQPPDLPTTALGGCPSDWIQFLNKCQVQGGQEPQSRVKWSEAO
 FSCEQQEAQLVTITNPLEQAFITASLPNVTFDLWIGLHASQRDFQWVEQEPLMYANWAPGEPSPGSPAPSGNKPSTSC
 AVVLHSPSAHFTGRWDDRSCTEETHGFICQKGTDPSPSPSPAPALPPAPGTELSYLNGTFRLLQKPLRWHDAALLCES
 HNASLAYVPDPYTQAFLTQAARGLRTPWIGLAGEEGSRYSWVSEEPNLYVGVQDGEPPQPGGCTYVDVDGAWRTT
 SCDTKLQGAVCVSSGPPPPRRISYHSGSCPQGLADSAWIPFHEHCYSFHMELLLGHKEARQRCQRRAGGAVLSILDEM
 ENVFVWEHLQSYEGQSRGAWLGMNFPNPKGGTLVWQDNTAVNYSNWGPPGLGPSMLSHNSCYWIQSNSGLWRPGACTN
 ITMGVVKLPRAEQSSFSPPSALPENPAALVVVLMVALLLLALLTAALILYRRRQSIERGAFEGARYSRSSSSPTEAT
 EKNILVSDMEMNEQQE

SEQ ID NO. 68

MKYILVTGGVISGIGKGIASSIGTILKSCGLRVTAIKIDPYINIDAGTFSPYEHGEVFLVNDGGEVLDLGNRYERF
 LDINLYKDNNTTGKIYQHVINKERRGDYLGKTVQVVPHTDAVQEWVMNQAKVPVDGNKEEPQICLGGTIGDIEGM
 PFVEAFRQFQFQAKRENFCNIHVSILVPQLSATGEQKTKPTQNSVRALRGLGLSPDLIVCRSSTPIEMAVKEKISMFC
 HVNPEQVICIHDVSSSTYRVPVLLLEEQSIKYFKERLHLPIGDSASNLFFKWRNMADRYERLQKICSIALVGKYTKLR
 DCYASVFKALEHSALAINHKLNLMYIDSIDLEKITETEDPVKFHEAWQKLCKADGILVPGGFGIRGTGLKQLAISWA
 RTKKIPFLGVCLGMQLAVIEFARNCLNLKADASTEFRPNAPVPLVIDMPEHNPGNLGGTMRLGIRRTVFKTENSILR
 KLYGDVPFIEERHRHREFEVNPNIKQFEQNDLSFVGQDVGDRMEIIELANHPYFVGQVQFHPEFSSRPMKPSPPYLG
 LLLAATGNLNAYLQGGCKLSSSDRYSDASDDSFSEPRIAELEIS

SEQ ID NO. 69

SPILCGAATALNCSLCPQDSNLSVHTENPDLTFCFQNSLLAWVPCIYLVVALPCYLLYLRRHRCRGYIILSHLSKLM
 VLGVLWCVSWADLFYSFHGLVHGRAPAPVFFVTPLVVGVMTMLLATLLIQYERLQGVQSSGVLIIFWFLCVVCAIVP
 FRSKILLAKAEGEISDPFRFTTFYIHFALVLSALILACFREKPPFFSAKNVDPNYPETSAGFLSRLFFWFTKMAI
 YGYRHPLEEKDLWSLKEEDRSQMVMVQQLLEAWRKQEKQTARHKASAAPGKNASGEDEVLLGARPRPRKPSFLKALLA
 TFGSSFLISACFKLIQDLLSFINPQLLSILIRFISNPMAPSWWGFLVAGLMFLCSMMQSLILQHYYHYIFVTGVKFR
 TGIMGVIYRKALVITNSVKRASTVGEIVNLMVSDAQRFMDLAPFLNLLWSAPLQIILAIYFLWQNLGPSVLAVAFM
 VLLIPLNGAVAVKMAFQVQKMKLKDSRIKLMSEILNGIKVLKLYAWEPSFLKQVEGIRQGEQLLRTAAYLHTTTT
 FTWMCSPFLVTLITLWVYVYVDPNNVLDAEKAFFVSLSFNILRLPLNMLPQLISNLTQASVSLKRIQQFLSQEELDP
 QSVERKTISPGYAITIHSGTFTWAQDLPPTLHSLDIQVPKGALVAVVGPVCGKSSLSVALLGEMEKLEGKVHMKGS
 VAYVPQQAQWIONCTLQENVLFKALNPQRYQQTLEACALLADLEMLPGGDQTEIGEKGINLSGGQRQVSLARAVYS
 DADIFLLDDPLSAVDSHVAKHIFDHVIGPEGVLAKTRVLVTHGISFLPQTDFFIIVLADGQVSEMGYPALLQRNGS
 FANFLCNYPADEDQGHLEDSWTALEGAEDKEALLIEDTLNHTDLTDNDPVTYVVQKQFMRQLSALSSDGEGQGRPV
 PRRHLGPSEKVQVTEAKADGALTQEEKAAIGTVELSVFWDYAKAVGLCTTLAICLLYVGQSAAGANVWLSAWTND
 AMADSRQNNSTSLRLGVYAALGILQGFVMLAAMAMAAGGIQAARVLHQALLHNKIRSPQSFFDTTPSGRILNCFSKD
 IYVVDEVLPVILMLLNSFFNAISTLVVIMASTPLFTVVILPLAVLYTLVQRFYAATSRQLKRLESVSRSPIYSHFS
 ETVTGASVIRAYNRSDFEIISDTKVDANQRSCYPYIISNRSEAASLAPCSSRNSQQALWCSGSLSLSPKQKTGPA
 LPLPHFLLI

SEQ ID NO. 70

AFHQGSLILCLALQSDRLLIKGGRIINDDQSLYADVLEDGLIKQIGENLIVPGGVKTIENGRMVIPEGIDVNTYL
 QKPSQGMTAADDFQGTAAALVGTTMIIDHVPEPGSSLLTSFEKWHEAADTKSCCDYSLHVDITSWYDGVREELE
 VLVQDKGVNSFQVYMAKDVYQMSDSQLYEAFTFLKGLGAVILVHAENGDLIAEQKRIEMGITGPEGHALSRPEE
 LEAEAVFRAITIAGRINCPVYITKVMKSAAIDIALARKKGPLVFGEPIAASLGTGTHYWSKNWAKAAAFVTSPL
 SPDPTTPDYLTSLACGDLQVTGSGHCPYSTAQKAVGKDNFTLIPEGVNGIEERMTVVWDKAVATGKMNDENQFVAVT
 STNAAKIFNLYPRKGRIAVGSDADVVIWDPDKLKTITAKSHKSAVEYNI FEGMECHGSPLVVISQGIKIVFEDGNINV
 NKGMRGFI PRKAFPEHLYQRVKIRNKVFLGQGVSRGMYDGPVYEVPA TP KYATPAPS AKSSPSKHQPPP I RN LHQSN
 FSLSGAQIDDNNPRRTGHRIVAPPGGRSNITSLG

SEQ ID NO. 71

MQRALPGARQHLGAILASASVVVKALCAAVLFLYLLSFAVDTGCLAVTPGYLFPPNFWIWTLATHGLMEQHVWDVAI
SLTTVVVAGRLLLEPLWGAELELLIFFSVVNVSVGLLGAFAYLLTYMASFNLVYLFVTRIHGALGFLGGVLVALKQTMG
DCVVLVRVPQVRVSVMPMLLLALLLLRLATLLQSPALASYGFGLLSSWVYLRFYQRHSRGRGDMADHFATFFPEI
LQPVVGLLANLVHSLLVKVKICQKTVKRYDVGAPSSITISLPGTDPQDAERRRQLALKALNERLKRVEDQSIWPSMD
DDEESGAKVDSPLPSDKAPTTPPGKGAAPESSLITFEAAPPTL

SEQ ID NO. 72

MPVLSRPRPWRGNTLKR TAVLLALAAYGAHKVYPLVRQCLAPARGLQAPAGEPTQEASGVAAAKAGMNRVFLQRLW
LLRLLFPRLCRETGLLALHSAALVSRTFLSVYVARLDGRLARCIVRKDPRAFGWQLLQWLLIALPATFVNSAIRYL
EGQLALSFRSRLVAHAYRLYFSQQTYRVSNDGRLRNPQSLTEDVVAFAASVAHLYSNLTKPLLDVAVTSYTLR
AARSRGAGTAWPSAIAGLVFLTANVLRASFSPKFGEIVAEAEARRKGEIYMHRSRVVANSEEIAFYGGHEVELALLQR
SYQDLASQINLILLERLWYVMLEQFLMKYVWSASGLLMVAVPIITATGYSESDAEAVKKAALKKEEELVSETEAF
TIARNLLTAAADAIERIMSSYKEVTELAGYTARVHEMFQVFEDVQRCHFKRPRELEDAQAGSGTIGRSGVRVEGPLK
IRGQVVDVEQGIICENIPIVTPSGEVVVASLNRVEEGMHLLITGPNCGCKSSLFRILGGLWPTYGGVLYKPPQRM
FYIPQRPYMSVGLRDQVIYVPSVEDMQRKGYSQDLEAILDVVHLHHILQREGGWEAMCDWKDVLSGGEKQRIGMA
RMFYHRPKYALLDECTSAVSIDVEGKIFQAAKDAGIALLSITHRPSLWKYHTHLLQFDGEGGWKFELDSAARLSLT
EEKQRLEQQLAGIPKMQRRLQELCQILGEAVAPAHVPAPSPQGPGLQAST

SEQ ID NO. 73

MDLDVVNMFVIAGGTALAIPIAFVASFLLWPSALIRIYYWYWRRTLGMQVRYVHHEDYQFCYSFRGRPGHKPSILML
HGFSAHKDMWLSVVKFLPKNLHLVCVDMPGHEGTTRSSLDLSDIDGQVKRIHQFVECLKLNKKPFHLVGTSMGQVA
GVYAAAYPSDVSSLCLVCPAGLQYSTDNQFVQRLKELQGSAAVEKIPLIPSTPEEMSEMLQLCSYVRFKVPQQILQG
LVDVRIPHNNFYRKLFLFLEIVSEKSRYSLHQNMMDKIKVPTQIIWGKQDQVLDVSGADMLAKSIANCQVELLENCGHVS
VMERPRKTAKLIIDFLASVHNTDNNK

SEQ ID NO. 74

SDRLLIRGGRIVNDQSFYADVHVEDGLIKQIGENLIVPGGIKTIDAHGLMVLPGGVDVHTRLQMPVLGMTPADDFC
QGTKAALAGGTTMILDHVPDGTGVSLLAAEYQWRERADSAACCDYSLHVDITRWHEISKEELEALVKEKGVNSFLVF
MAYKDRQCQSDSQMYEIFSIRDLGALAQVHAENGDIVEEEQRLLELGITGPEGHVLSPHEEVEAEAVYRAVTIAK
QANCPYVTKVMSKGAADAIAQAKRRGVVVFGEPIITASLGTGDSHYWSKNWAKAAAFVTSPPVNPDPPTADHLTCLL
SSGDLQVTGSAHCTFTTAQKAVGKDNFALIEGTNGIEERMSMVWEKCVASGKMDENEFVAVTSTNAAKIFNFYPRK
GRVAVGSDADLVIWNPKATKIISAKTHNLNVEYNI FEGVECRGAPAVVISQGRVALEDGKMFVTPGAGRFPVPRKTFP
DFVYKRIKARNRLAEIHGVPRGLYDGPVHEVMVPAKPGSGAPARASCPGKISVPPVRNLHQSGFSLSGSQADDHIAR
RTAQKIMAPPGRSNITSL

SEQ ID NO. 75

MARRSVLYFILLNALINKGQACFCDHYAWTQWTSCSKTCNSGTQSRHRQIVVDKYYQENFCEQICSKQETRECNWQR
CPINCLLGDFGPWSDCDPCIEKQGTSNFHYLNHLFTSFFHLDDSSFIRIHKVMKVLNFTTKAKDLHLSDFLKAALNHL
PLEYNSALYSRIFDDFGTHYFTSGSLGGVYDLYQFSSEELKNSGLTEEEAKHCVRRIETKKRVLFAKKTKEVHRCTT
NKLSEKHEGSFIQGAEKSI SLIRGGRSEYGAALAWEKSSGLEEKTFSEWLESVKENPAVIDFELAPIVDLVRNIPC
AVTKRNNLRKALQEYAAKFDPCQCAPCPNNGRPTLSGTECLCVCQSGTYGENCEKQSPDYKSNAVDGQWGCWSSWST
CDATYKRSRTRECNPAPQRGGKRCEGEKQREEDCTFSIMENNGQPCINDDEEMKEVDLPEIEADSGCPQVPVPENG
FIRNEKQLYLVGEDVEISCLTGFPETVGYQYFRCLPDGTWRQGDVEQCQRTCEIKPVVQEVLTITPFQRLYRIGESIEL
TCPKGFVVAGPSRYTCQNSWTPPISNSLTCEKDTLTKLKGHCQLGQKQSGSECI CMSPEEDCSHSEDL CVFD TDS
NDYFTSPACKFLAEKCLNNQQLHFLHIGSCQDGRQLEWGLERTRLSSNSTKKESCGYDTCYDWEKCSASTSKCVCLL
PPQCFKGGNQLYCVKMGSSTSEKTLNICEVGTIRCANKMEILHPGKCLA

SEQ ID NO. 76

MERKNQTAITEFIILGFSNLNELQFLFLTIFFLTYFCTLGGNIIILTTVTDPHLHTPMYYFLGNLAFIDICYTTSN
VPQMMVHLLSKKKSISYVGCVVQLFAFVFFVGSECLLLAAMAYDRYIAICNPLRYSVILSKVLCNQLAASCWAAGFL
NSVHTVLTFLCPLFCGNNQINIFYFCDIPPLLI LSCGNTSVNELALLSTGVFIGWTPFLCIVLSYICIIISTILRIQSS
EGRRAKAFSTCASHLAIVFLFYGSAIFTYVRPISTYSLKKDRLVSVLYSVVTPMLNPIIYTLRNKDIKEAVKTIGSKW
QPPISLDSKLT

SEQ ID NO. 77

MDPGKDKGVPQPSGPPARKKFVPLDEDEVPPGVAKPLFRSTQSLPTVDTSAQAAPQTYAHEYAISQPLEGAGATCP
 TGSEPLAGETPNQALKPGAKSNSIIVSPRQRGNPVLKVRNVPWEFGDVIPDYVLGQSTCALFLSLRYHNLHPDYIH
 GRLQSLGKNFALRVLLVQVDVKDPQQALKELAKMCILADCTLILAWSPEEAGRYLETYKAYEQKPADLLMEKLEQDF
 VSRVTECLTTVKSVNKTDSTQLLLTTFGSLEQLIAASREDLALCPGLGPQKARRLFDVLHEPFLKVP

SEQ ID NO. 78

MLANSASVRILIKGGKVNDCTHEADVYIENGIIQQVGRELMI PGGAKVIDATGKLVIPGGIDTSTHFHQTFMNAT
 CVDDFYHGTKAALVGGTTMIGHVLPDKETSLVDAYEKCRGLADPKVCCDYALHVGITWWAPKVKAEMETLVREKGV
 NSFQMFMTYKDLNWNMLRDSELYQVLHACKDIGAIARVHAENGELVAEASLQPRILDGGTPGAKEALDLGITGPEGI
 EISRPEELEAEATHRVITIANRTHCPIYLVNVSSISAGDVI AAKMQGKVLAETTTAHATLTGLHYYHQDWSHAAA
 YVTVPLRLDTNTSTYLSLLANDTLNIVASDHRPFTTKQKAMGKEDFTKI PHGVSGVQDRMSVIWERG VVGKMD
 NRFVAVTSSNAKLLNLYPRKGRIIPGADADVVDPEATKTISASTQVQGGDFNLYENMRCHGVPLVTISRGRVY
 ENGVMCAEGTGKFCPLRSFPDTPYKLVQREKTLKVRGVDRTPYLGDAVVVHHPGKKEMGTPLADTPTRPVTRHGG
 MRDLHESSFSLSGSQIDDHVPKRASARILAPPGGRSSGIW

SEQ ID NO. 79

VTAVAQQNQGEVPEPQDMKVAEVLFDAADANAIEEVNLAYENVKEVDGLDVSKEGTEAWEAAMKRYDERIDRVETRI
 TARLRDQLGTAKNANEMFRIFSRFNALFVRPHIRGAIREYQTQLIQRVKDDIESLHDKFKVQYPQSQACKMSHVRDL
 PPVSGSIWAKQIDRQLTAYMKRVEDVLGKGWENHVEGQKLGQDGSFRMKNLTQEI FDDWARKVQQRNLGVSGRIF
 TIESTRVRGRTGNVLKLVNPLPEIITLSKEVRNLKWLGRVPLAIVNKAHQANQLYPFAISLIESVRTYERTCEKV
 EERNTISLLVAGLKKEVQALIAEGIALVWESYKLDPYVQRLAETVFNFOEKVCSHVIL

SEQ ID NO. 80

MSDSVILRSIKKFGEENDGFESDKSWSLNPYVFLIRLQDEKKGDGVRVGGFFQLFRFSSSTDIWLMFVGSGLCAFLHG
 IAQPGVLLIFGTMTDVFIDYDVELQELQIPGKACVNNITVWNTSSLNQNMNTNGTRCGLLNIESEMIKFASYAGIAV
 AVLITGYIQICFWVIAAARQIQKMRKFYFRIRMRMEIGWFDNCNSVGELNTRFSDDINKINDAIADQMALFIQRMST
 ICGFLLGFRGWKLTUVIISVSPLIGIGAATIGLSVSKFTDYELKAYAKAGVVADEVISSMRTVAAFGGEKREVERY
 EKNLVFAQRWGIRKGI VMGFFTGFWCLIFLCYALAFWYGSTLVLDGEYTPGTLVQIFLSVIVGALNLGNASPCLE
 AFATGRAAATSI FETIDRKPIIDCMSEDGYKLDRIKGEIEFHNVTFHYPSPRPEVKILNDLNMVIKPGEMTALVGPSG
 AGKSTALQLIQRFYDPCEGMVTVDGHDIRSLNIQWLRDQIGIVEQEPVLFSTTIAENIRYGREDA TMEDIVQAAKEA
 NAYNFIMDLPPQFDTLVGEGGGQMSGGQKQORVAIARALIRNPKILLLD MATSALDNESEAMVQEVLSKIQHGHTIIS
 VAHRLSTVRAADTIIGFEHGTAVERGTHEELLERKGVYFTLVTLQSQGNQALNEEDIKKGKCFPIILVLDATEDDMLA
 RTFSRGSYQDSLRSIRQRSKSQLSYLVHEPPLAVVDHKSTYEEDRKDKDIPVQEEVEPAPVRRLKFSAPWPYML
 VGSVGA AVNGTVTPLYAFLFSQILGTFSIPDKEEQRSQINGVCLLFVAMGCVSLFTQFLQGYAFAKSGELLTKRLRK
 FGFRAMLGQDIAWFDDLNRNSPGALTTRLATDASQVQGAAGSQIGMIVNSFTNVTVAMI IAFSFSWKL SLVILCFFPF
 LALSGATQTRMLTG FASRDQALEMVGQITNEALSNI RTVAGIGKERRFIEALETELEKPFKTAIQKANIYGFCFAF
 AQCIMFIANSASYRYGGYLISNEGLHFSYVFRVISAVVLSATALGRAFSYTPSYAKAKISAARFFQLLDROPPI SVY
 NTAGEKWDNFQKIDFVDCKFTYPSRPDSQVLNGLSVSISPGQTALFVGSSGCGKSTSIQLLERFYDPDQGV MIDG
 HDSKKVNVQFLRSNIGIVSQEPVLFACSIMDN IKYGDNTKEIPMERVIAAAKQQLHDFVMSLPEKYETNVGSQGSQ
 LSRGEKQRIAIARAIVRDPKILLLDEATSALDTESEKTVQVALDKAREGRTCIVIAHRLSTIQNADIIAVMAQGVVI
 EKGTHEELMAQKGAYYKLVTTGSPIS

SEQ ID NO. 81

MDLEAAKNGTAWRPTSAEGDFELGISSKQKRKKTCTVKMIGVLTFLFRYSWDQDKLFMSLGTIMAI AHGSGPLPLMMIV
 FGEMTDKFVDTAGNFSFPVNFSLSLNPGKILEEEMTRYAYYSGLGAGVLVAAYIQVSFWTLAAGRQIRKIRKQFF
 HAILRQEIGWFDINDTTELNTRLTDDISKISEGIGDKVGMFFQAVATFFAGFIVGFIRGWKLTUVIMAISPILGLSA
 AVWAKILSAFSDKELAAAYAKAGAVAEALGAIRTVIAFGGQNKELERYQKHLENAKEIGIKKAISANISMGIAFLLI
 YASYALAFWYGSTLVISKEYTIGNAMTVFFSILIGAFSVGQAAPCIDAFANARGAAYVIFDIIDNNPKIDSFSERGH
 KPDSIKGNLEFNDVHFSYPSRANVKILKGLNLKVQSGQTVLVGSSGCGKSTTVQLIQRLYDPDEGTINIDGQDIRN
 FNVNLYREIIGVVSQEPVLFSTTIAENICYGRGNVTMDEIKKAVKEANAYEFIMKLPQKFDTLVGERGAQLSGGQKQ
 RIAIARALVRNPKILLLDEATSALDTESEAEVQAALDKAREGRTTIVIAHRLSTVRNADV IAGFEDGVIVEQGSHE
 LMKKEGVYFKLVNMQTSQSQIQSEEFELNDEKAATRMANGWKSRLFRHSTQKNLKN SQMCQKSLDVETDGLEANVP
 PVSFLKVLKLNKTEWPYFVVGTVCAIANGGLQPAFSVIFSEIIAIFGPGDDAVKQKCNIFSLIFLFLGII SFFTF
 LQGFTFGKAGEILTRRLRSMAFKAMLRQDMSWFDHKNSTGALSTRLATDAAQVQGATGTRLALIAQNIANLGTGII
 ISFIYGWQLTLLLLAVVPII AVSGIVEMKLLAGNAKRDKKELEAAGKIA TEAIENIRTVVSLTQERKFESMYVEKLY
 GPYRNSVQKAHIYGITFSISQAFMYFSYAGCFRFGAYLIVNGHMRFRDVILVFS AIVFGAVALGHASSFAPDYAKAK

LSAAHLFMLFERQPLIDSYSEGLKPKDFEGNITFNEVVFNYPTRANVPVLQGLSLEVKKGQTLALVGSSGCGKSTV
VQLLERFYDPLAGTVLLDGGQEAKKLNQWLRAQLGIVSQEPILFDCSIAENIAYGDNRSRVVSQDEIVSAAKAANIHP
FIETLPHKYETRVGDKGTQLSGGQKQRIAIARALIRQPQIILLDEATSALDTESEKVVQEALDKAREGRTCIVIAHR
LSTIQNADLIVVFQNGRVKEHGTHQQLLAQKGIYFSMVSQAGTQNL

SEQ ID NO. 82

MDLEGDRNGGAKKKNFFKLNNKSEKDKKEKKPTVSVFSMFRYSNWLDKLYMVVGTAAIIHGAGLPLMMLVFGEMTD
IFANAGNLEDLMSNITNRSDINDTGFFMNLEEDMTRYAYYYSGIGAGVLVAAYIQVSFWCLAAGRQIHKIRKQFFHA
IMRQEIGWFDVHDVGELNTRLTDDVSKINEGIGDKIGMFFQSMATFFTGFIVGFTRGWKLTIVILAIISPVLGLSAAV
WAKILSSFTDKELLAYAKAGAVAEVLAARTVIAFGGQKKELERYNKNLEEAKRIGIKKAITANISIGAAFLLIYA
SYALAFWYGTTLVLSGEYSIGQVLTFFSVLIGAFSVGQASPSIEAFANARGAAYEIFKIIDNKPSIDSYSKSGHKP
DNIKGNLEFRNVHFSYPSRKEVKILKGLNLKVQSQGTVALVGNSSGCGKSTTVQLMQRLYDPTEGMVSVDGQDIRTIN
VRFLREIIGVVSQEPVLFATTIAENIRYGRENTMDEIEKAVKEANAYDFIMKLPKFDTLVGERGAQLSGGQKQRI
AIARALVRNPKILLLDEATSALDTESEAVVQVALDKARKGRTTIVIAHRLSTVRNADVIAGFDDGVIVEKGNHDELM
KEKGIYFKLVMTQTAGNEVELENAADESKSEIDALEMSSNDSRSSLIRKRSTRRSVRGSQAQDRKLSTKEALDESIP
PVSFWRIMKLNLTWPYFVVGVFCAIINGGLQPAFAIIFSIIIGVFTRIDDPETKRQNSNLFSLFLALGIISFITF
FLQGFTFGKAGEILTTLRLYMVFRSMLRQDVSWFDDPKNTTGALTTRLANDAAQVKAIGSRLAVITQNIANLGTGI
IISFIYGWQLTLLLLAIVPIIAIAGVVEMKMLSGQALKDKKELEGSGKIAIEAENFRTVVSLTQEQKFHEMYAQL
QVPYRNSLRKAHIFGITFSFTQAMMYFSYAGCFRFGAYLVAHKLMSEFEDVLLVFSVAVFGAMAVGQVSSFPADYAKA
KISAAHIIMIIEKTPLIDSYSTEGLMPTLEGNVTFGEVVFNYPTRPDI PVLQGLSLEVKKGQTLALVGSSGCGKST
VVQLLERFYDPLAGTVLLDGGQEAKKLNQWLRAHLGIVSQEPILFDCSIAENIAYGDNRSRVVSQEEIVRAAKEANIH
AFIESLPNKYSTKVGDGTQLSGGQKQRIAIARALVRQPHILLLDEATSALDTESEKVVQEALDKAREGRTCIVIAH
RLSTIQNADLIVVFQNGRVKEHGTHQQLLAQKGIYFSMVSQAGTKRQ

SEQ ID NO. 83

MLLTVCVRRDLSEVTFSLQVDADFELHNFALCELESGIPAAESQIVYAEPLTDNHRSLASYGLKDGDVILRQK
ENADPRPPVQFPNLPRIDFSSIAVPGTSSPRQRQPPGTQQSHSSPGEITSSPQGLDNPALLRDMMLLANPHELSLLKE
RNPPLAEALLSGDLEKFSRVLVEQQQDRARREQERIRLFSADPFDLAQAKIEEDIRQONIEENMTIAMEEAPESFG
QVVMYINCKVNGHPVKAFVDSGAQMTIMSQAACERCNIMRLVDRRWAGIAKGVGTQKIIGRVHLAQVQIEGDFLPC
SFSILEEQPMDMLGLDMLKRHCSDLDKKNVLVIGTTGSQTTFLPEGELPECARLAYGAGREDVRPEEI

SEQ ID NO. 84

QTGPSVTVTCTEGKWNKQCRICKEDTAPHAVLPSGSECATSCLDHNSSESIIILPMNVTVRDI PHWLNPTTRVEVSDQGH
L

SEQ ID NO. 85

MSATLILEPPGRCCWNEPVRIAVRGLAPEQRVTLRASLRDEKGALEFRAHARYCADARGELDLERAPALGGSFAGLEP
MGLLWALEPEKPFWRFLKRDVQIPFVVELEVLDGHDPEPGRLLCQAQHERHFLPPGVRRQSVRAGRVRATLFLPPGP
GPFPGI IDIFGIGGGLLEYRASLLAGHGFATLALAYNFEDLPNNMDNISLEYFEEAVCYMLQHPQVKGPGIGLLGI
SLGADICLSMASFLKNVSATVSINGSGISGNTAINYKHSSIPPLGYDLRRIKVAFSGLVDIVDIRNALVGGYKNPSM
IPIEKAQGPILLIVGQDDHNWRSELYAQTVSERLOAHGKEKQPIICYPGTGHYIEPPYFPLCPASLHRLLNKHVIWG
GEPRAHSAQEDAWKQILAFFCKHLGGTQKTA

SEQ ID NO. 86

ILHGEHTLSHQDNFSPGQEVFYSCEPSYDLRGAASLHCTPQGDWSPEAPRCTVKSCDDFLGQLPHGRVLLPLNLQLG
AKVSFVCDEGFRLKGRSASHCVLAGMKALWNSSVPVCEXXMIKTVFLFFSLPISNNAHENPKEVAIHLHSQGGSSVH
PRTLQTNENESRYIHTEFKMFSTTQISKMETGLETDIALANNECKNSYSLVTREIFVIHYIDCALPFGIICGLPPT
IANGDFTSISREYFHYGSVVYTHCNLGSRGKKVFELVGEPSIYCTSKDDQVGIWSGPAPQCIIPNKCTPPNVENGIL
VSDNRSLSLSNEVVEFRCPQPGFMKGPSHVCKQALNKWPELPSCSRVCQPPPDVLHAERTQRDKDNFSPGQEVFYS
CEPGYDLRGSTYLHCTPQGDWSPAAPRCEVKSDDFLGQLPNGHVLFPLNLQLGAKVDFVCEGDFQLKGSSASYCVL
AGMESLWNSSVPVCERVTFQANLSPSSVQYLTHDTRLTEESSDYSTWLQNIFFPTGKSCETPPVPVNGMVHVIDIH
VGSRIYNSCTTGHRILGHSSAECILSGNTAHWSMKPPIQRI PCGLPPNITNGYFISTDREYFHYGSVVYTHCNLGS
RGRKVFELVGEPSIYCTSKDDQVWVWSGPVQCIIPNKCTPPNVENGILVSDNRSLSLSNEVVEFRCPQPGFVMKGPH
RVQCQALNKWPELPSCSRGYSKRNSPITNKYSGTVLSTMCQPPPEILHGEHTLSHQDNFLPGQEVFYSCEPSYDLR
GAASLHCOMPQGDWTEAPRCTGASLSPSHGSLTPVVLFFLLVKSCDDFLGQLPHGRVLFPLNLQLGAKVSFVCDEGS
ASHCVLAGTKALWNSSVPVCEQIFCPNPPAILNGRHTGTPPGDIPYGKEVSYTCDPHPDRGMTFNLIGESTIRRTSE

PHGNGVWSSPAPRCELPGVADQCNVPEWLPFARPTNLTDDEFPIGTYLNYECPGYSGRPFSIIICLKNSVWTS AKD
KCKRKSCRNPDPVNGMAHVIKDIQFRSQIKYSCPKGYRLIGSSSATCIIISGNTVIWDNKTPVCD

SEQ ID NO. 87

ICCPDDPQPAKDQLATVPKDIPLDCDCVLTGEDILGEVANRTAQGLEGLVSDSACTVGTIDAEQLSDTDSVQMFLEL
EKECLCEEGVTPLEVELQNISSSEGLAASQDAENLLVISHFSGAALKEQHLGLLHVRAKDYDTRLDCGYFNTLDSSQ
VPNAVELIAHVDIMRDTSTVSKEECEKVPFSPRTAEFKSRQPADLDSLEKLDPGGLLNSDHRVSHEEKLSGFIASEL
AKDNGSLSQGDCSQTEGNGEECIERVTFSFAFNHELTDVTSGPVEVEVLYESNLLTDEIHLESGNVTVNQENNSLTSM
GNVVTCELSVEKVCDEDEGEAKELDYQATLLEDQAPAHFHRNFPEQVFQDLQRKSPSEILSLHLLVEELRLNPDGVE
TVNDTKPELNVASSEGEMERRDSDFLNIFPEKQVTKAGNTEPVLEEWIPVLQRPSTAAVPTVKDALDAALPSPE
EGTSIAAVPAPEGTAVVAALVPFPHEIDILVASIVSLEEEDVTAAAVSAPERATVPAVTVSVPEGTAÀVAAVSSPEET
APAVAAAITQEGMSAVAGFSPEWAALAVTVPI TEEDAAAVPTPEVAAIPAASVPTPEVPAIPAAAVPPMEEVSPIGV
PFLGVSATDSVPISSEGTVPLEEASSTGMWIKEDLDSL VFGIKEVTSTVLHGKVPLAATAGLNSDE

SEQ ID NO. 88

SEGNKRRLSTAIALMGRSSVIFLDEPSTGMDPVARRLLWNMVTKTRESGKAIVMTSHSMEECDALCTSLAIMVQGKF
TCLGSPQHLKSKFGNIYILKVVKTEDKLEDFKCYVATTFFGEIAMVTVFLLLLLKVFGILEEAKQFDLEDYSVSQ
ITLEQVFLTFANPEKASSDD

SEQ ID NO. 89

DCGPPPELPFAFPINPLYDTEFKTGTTLYKTCHPGHGKINSSRLICDAKDSWNYSIFCAIAKCEPPPDIRNGKHSGG
DQEFYTYASSVTYSCNPYFSLIGNVSISCTVENETIGVWSPNPPICE

SEQ ID NO. 90

ISKDRKERVHQGMVRAATVGYGILREGGSAVDAVEGAVVALEDDPEFNAGCGSVLNTNGEVEMDASIMDGKDL SAGA
VSAVQCIANPIKLARLVMEKTPHCFLLTDQGAQAFAAMGVPEIPGEKLVTERNKKRLEKEKEKGAQKTDCQKNLGT
VGAVALDCKGNVAYATSTGGIVNKMVGRVGDSPCLGAGGYADNDIGAVSTTGHGESILKVNLARLTLFHIEQGKTVE
EAADLSLGYMKSRVKGLGGLIVVSKTGDWVAKWTSTSMPWAAAKDGKLFHFGIDPDDTTITDLP

SEQ ID NO. 91

LQLGAKVSFVCDEGFRLKGRSASHCVLAGMKALWNSSVPVCERIICGLPPTIANGDFTSISREYFHYGSVVTYHCNL
GSRGKKVFELVGEPSIYCTSKDDQVGIIWSGPAPQCIIPNKCTPPNVENGILVSDNRSLSLNEVVEFRCPGFGMKG
PSHVKCQALNKWEPELPSCSRVCQPPPDVLHAERTQRDKDNFSPGQEVFYSCPEGYDLRGSTYLHCTPQGDWSPAAP
RCEVKSCDDFLGQLPNGHVLFPNLNLQLGAKVDFVCDEGFQLKGSSASYCVLAGMESLWNSSVPVCEQIFCPNPAIL
NGRHTGTPPGDIPYGKEVSYTCDPHPDGRGMTFNLI GESTIRRTSEPHGNGVWSSPAPRCELPGVADQCNVPEWLPFA
RPTNLTDDEFPIGTYLNYECPGYSGRPFSIIICLKNSVWTS AKDKCKRKSCRNPDPVNGMAHVIKDIQFRSQIKY
SCPKG

SEQ ID NO. 92

HGRVLLPLNLQLGAKVSFVCDEGFRLKGRSASHCVLAGMKALWNSSVPVCERIICGLPPTIANGDFTSISREYFHYG
SVVTYHCNLGSRGKKVFELVGEPSIYCTSKDDQVGIIWSGPAPQCIIPNKCTPPNVENGILVSDNRSLSLNEVVEFR
CQPGFGMKGPSHVKCQALNKWEPELPSCSRVCQPPPDVLHAERTQRDKDNFSPGQEVFYSCPEGYDLRGSTYLHCTP
QGDWSPAAPRCEVKSCDDFLGQLPNGHVLFPNLNLQLGAKVDFVCDEGFQLKGSSASYCVLAGMESLWNSSVPVCEQI
FCPNPAILNGRHTGTPPGDIPYGKEVSYTCDPHPDGRGMTFNLI GESTIRRTSEPHGNGVWSSPAPRCELPGVAGQY
PLPHILNGFRICSEVEVF EYLNAVTDSCDPAPGDPFSLIGESTIYCGDNSVWNHAAPECK

The present invention is not to be limited in scope by the exemplified embodiments which are intended as illustrations of single aspects of the invention, and any clones, DNA or amino acid sequences which are functionally equivalent are within the scope of the invention. Indeed, various modifications of the invention in addition to those described herein will become apparent to those skilled in the art from the foregoing description and accompanying drawings. Such modifications are intended to fall within the scope of the appended claims.